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Statistics

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About

> [By Catalogue Number](#)

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ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

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Measures of Australia's Progress

IS LIFE IN AUSTRALIA GETTING BETTER?

In the 10 years to June 2008, GDP grew from \$41,000 to \$51,000 per person (up 2.2% p.a.). GDP is an important signal about the economy. But what happened to our society, other aspects of the economy and the environment over that period?

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INDIVIDUALS



THE ECONOMY



THE ENVIRONMENT



LIVING TOGETHER

- [Health](#)
- [Education and training](#)
- [Work](#)
- [GDP](#)
- [National income](#)
- [Economic hardship](#)
- [National wealth](#)
- [Housing](#)
- [Productivity](#)
- [Biodiversity](#)
- [Land](#)
- [Inland waters](#)
- [Air quality](#)
- [Atmosphere](#)
- [Oceans and estuaries](#)
- [Family, community and social cohesion](#)
- [Crime](#)
- [Democracy, governance and citizenship](#)



[SUMMARY](#)



[ABOUT MAP](#)



[FEATURE ARTICLES](#)



[REGIONAL DATA](#)

MEASURES OF PROGRESS ACROSS SOCIETY, THE ECONOMY AND THE ENVIRONMENT



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A related publication is Australian Social Trends, which sheds light on key social issues



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[Statistics](#)

[Census](#)

[Participating in a survey](#)

[About](#)

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

[Summary](#)

[Downloads](#)

[Explanatory Notes](#)

[Related Information](#)

[Past Releases](#)

Page tools: [Print Page](#) [Print All](#)

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

FULL CONTENTS



Summary

- [Summary graph](#)
- [Detailed summary](#)



About MAP

- [Measuring progress - an ABS approach](#)
- [A framework for measuring progress](#)
- [Indicators of progress](#)
- [How the Progress indicators are presented](#)
- [National and international initiatives](#)

Individuals



- [Health](#)
- [Education and training](#)
- [Work](#)



The Economy and Economic Resources

- [Gross domestic product](#)
- [National income](#)
- [Economic hardship](#)
- [National wealth](#)
- [Housing](#)
- [Productivity](#)



The Environment

- [Biodiversity](#)
- [Land](#)
- [Inland waters](#)
- [Air quality](#)
- [Atmosphere](#)
- [Oceans and estuaries](#)



Living Together

- [Family, community and social cohesion](#)
- [Crime](#)
- [Democracy, governance and citizenship](#)



Feature Articles 2008

[Relationships between domains of progress](#)

2006

- [Life satisfaction and measures of progress](#)
- [Some international comparisons of progress](#)

2004

- [Multiple disadvantage](#)
- [Progress indicators in other countries](#)
- [Population, participation and productivity](#)



Regional Data

- [State and territory spreadsheets](#)
- [Australian Social Trends \(4102.0\)](#) - See spreadsheets
- [National Regional Profile](#)
- [NSW State and Regional Indicators \(1338.1\)](#)
- [State and Regional Indicators, Victoria \(1367.2\)](#)
- [Queensland at a Glance \(1312.3\)](#)
- [South Australia at a Glance \(1306.4\)](#)
- [Western Australia at a Glance \(1306.5\)](#)
- [Tasmanian State and Regional Indicators \(1307.6\)](#)
- [Northern Territory at a Glance \(1304.7\)](#)
- [In fACT - Statistical Information on the ACT and Region \(1308.8\)](#)

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[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



[Statistics](#)

[Census](#)

[Participating in a survey](#)

[About](#)

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

[Summary](#)

[Downloads](#)

[Explanatory Notes](#)

[Related Information](#)

[Past Releases](#)

Page tools: [Print Page](#) [Print All](#)

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)



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This page last updated 30 April 2009

ABS logo



[Statistics](#)

[Census](#)

[Participating in a survey](#)

[About](#)

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

[Summary](#)

[Downloads](#)

[Explanatory Notes](#)

[Related Information](#)

[Past Releases](#)

Page tools:

On this page:

[Data Cubes](#)

Help for : [Excel File](#) [Zip File](#).

Data Cubes

State and territory spreadsheets



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[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

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[Measures of Australia's Progress: At A Glance - 1383.0.55.002 - 2008](#)

[Measures of Australia's Progress - 1370.0 - 2013](#)

[Measuring Wellbeing: Frameworks for Australian Social Statistics - 4160.0 - 2001](#)

[Australian Social Trends - 4102.0 - 2014](#)

[NSW State and Regional Indicators - 1338.1 - Dec 2010](#)

[State and Regional Indicators, Victoria - 1367.2 - Dec 2010](#)

[Queensland at a Glance - 1312.3 - Jan 2012](#)

[South Australia at a Glance - 1306.4 - 2009](#)

[Western Australia at a Glance - 1306.5 - 2014](#)

[Tasmanian State and Regional Indicators - 1307.6 - Dec 2010](#)

[Northern Territory at a Glance - 1304.7 - 2011](#)

[In fACT - Statistical Information on the ACT and Region - 1308.8 - Feb 2011](#)

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[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

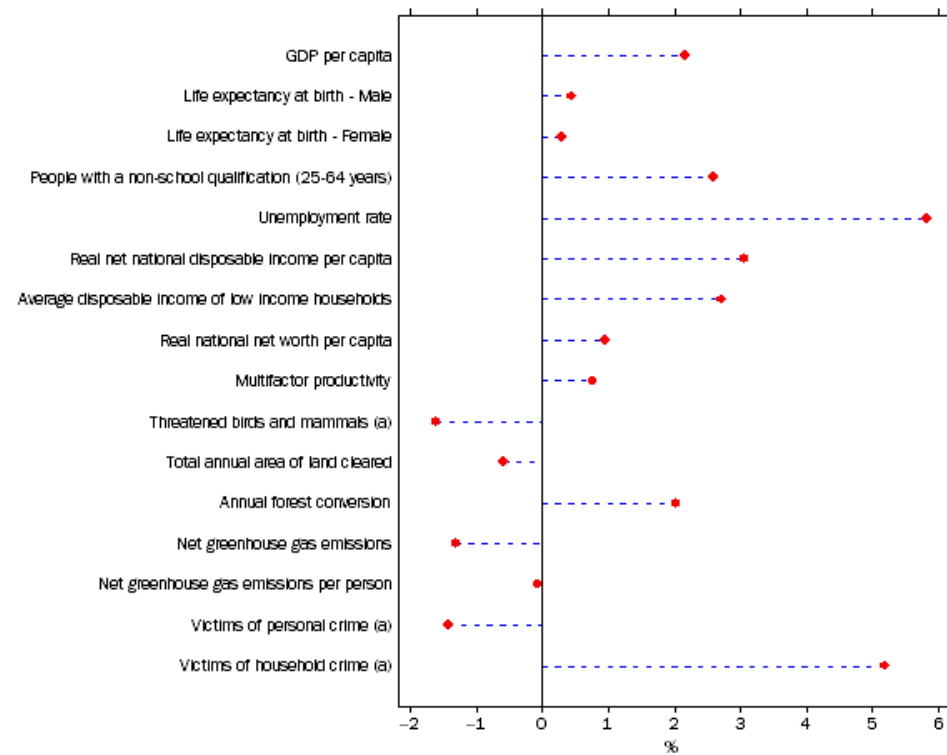
[Rate this page](#)



SUMMARY [\(more ...\)](#)

Average annual rate of change of selected MAP indicators over the past 10 years^(a)

Note: In the graph, change towards progress is shown in the positive direction to make comparisons easier. For example, unemployment fell between 1998 and 2008 and is therefore plotted in the positive direction. Victims of personal crime rose between 1998 and 2005 and is plotted in the negative direction. Similarly, for land clearing (an indicator of biodiversity) the total area of land cleared per year increased between 1995 and 2005 (negative direction) while the annual area of forest conversion fell (positive direction).



(a) Most recent period for which data are available. Threatened species based on 8 years and victims of personal and household crime on 7 years.

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[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

DETAILED SUMMARY

In the 10 years to June 2008, GDP per person grew from \$41,000 to \$51,000 in real terms, an increase of 2.2% per year on average. GDP is certainly an important signal about the health of our economy. But what happened to the state of our society, other aspects of the economy and the environment over that period?

This publication is about Australia's progress. It is intended to help Australians address the question, 'Is life in our country getting better, especially over the most recent decade?'

Answering the question is not easy. Indeed there can be no definitive answer, because we all have our own views about what is most important to individual and national life. The ABS hopes that Australians will use these indicators to form their own views of how our country is progressing.

ASSESSING PROGRESS

The suite of indicators presented in this publication suggests progress in some areas of Australian life and regress in others. What follows is a brief summary of information from the headline indicators. Overall progress should not be assessed by simply counting the numbers of areas getting better and subtracting those getting worse. There are a number of factors that affect any assessment of progress:

- some aspects of progress (e.g. national income and national wealth) are more easily encapsulated in a

small number of indicators than others (e.g. social and environmental aspects)

- some people may give greater importance to some progress indicators than others
- the strength of progress or regress in each dimension may influence the assessment
- patterns that underlie the national trends may affect views of progress - so it might be important to know not just whether health is improving for the Australian population overall, but also whether it is improving for particular groups of Australians (such as Aboriginal and Torres Strait Islander peoples).

Individuals	The economy and economic resources	The environment	Living together
<p><u>Health:</u></p> <p>During the past decade, life expectancy increased – children born in 2007 were expected to live three years longer than those born in 1997.</p> <p><u>Education and training:</u></p> <p>During the past 10 years the proportion of people aged 25–64 years with a vocational or higher education qualification rose from 47% to 61%.</p> <p><u>Work:</u></p> <p>In 1998 the unemployment rate was 7.7%. Since then it has generally fallen and the average annual unemployment rate in 2008 was 4.2%.</p>	<p><u>GDP:</u></p> <p>Between 1997-98 and 2007-08, GDP per person grew by 2.2% a year on average.</p> <p><u>National income:</u></p> <p>Between 1997-98 and 2007-08, real net national disposable income per person grew by 2.8% a year on average.</p> <p><u>Economic hardship:</u></p> <p>Between 1994–95 and 2005–06 the real income of less well-off Australians (those in the second and third lowest deciles of the income distribution) grew by 31% overall or 2.7% per year on average. The incomes of Australians in the middle income group grew by a similar amount.</p> <p><u>National wealth:</u></p> <p>Real national net worth per capita increased by 0.9% a year on average between 1997-98 and 2007-08.</p> <p><u>Housing:</u></p> <p>In the 10 years to June 2008, around \$603 billion (in real terms) was invested in dwellings</p>	<p><u>Biodiversity:</u></p> <p>Between 2000 and 2008, the number of terrestrial bird and mammal species assessed as extinct, endangered or vulnerable rose by 14% from 154 to 175. Land clearance, one influence thought to be reducing biodiversity, increased by about 6% overall, or 0.5% per year on average, between 1995 and 2005.</p> <p><u>Land:</u></p> <p>In 2000, about 5.7 million hectares of land (not all of it agricultural land) were affected by, or at high risk of developing, dryland salinity, a widespread form of land degradation.</p> <p><u>Inland waters:</u></p> <p>In 2005 about one-quarter of Australia's surface water management areas were classed as highly used or overused.</p> <p><u>Air quality:</u></p> <p>Between 1997 and 2007 urban air quality has generally been good, even though bushfires have obscured this trend.</p>	<p><u>Family, community and social cohesion:</u></p> <p>Since the mid-1990s, the proportion of children aged under 15 years living without an employed parent in the same household has varied between 15% and 19%, and has been 16% or less since 2002-03.</p> <p><u>Crime:</u></p> <p>Between 1998 and 2005, the victimisation prevalence rates for personal crimes increased slightly, from 4.8% to 5.3%, the same level as in 2002. Between 1993 and 2005, the proportion of households that were the victim of a household crime (an actual or attempted break-in or motor vehicle theft) fell from 8.3% to 6.2%, after remaining at about 9% in 1998 and 2002.</p> <p><u>Democracy, governance and citizenship:</u></p> <p>Over the past 10 years, the proportion of women in the Parliament of Australia increased from 22% to 27%</p>

(excluding land) with investment exceeding \$60 billion in each year since 2003.

Productivity:

During the decade 1997-98 to 2007-08, Australia experienced improved productivity growth, and multifactor productivity rose by 0.8% per year on average.

Atmosphere:

In 2006, Australia's total net greenhouse gas emissions were 1% below 2005 levels and 4.2% higher than they were in 1990.

Oceans and estuaries:

Between 1997 and 2007 there was an increase in the number of fish species in Commonwealth fisheries classified as overfished.

in the House of Representatives and from 32% to 36% in the Senate.

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[Accessibility](#)

[Staff login](#)

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

MEASURING PROGRESS - AN ABS APPROACH

- [Introduction - Why the ABS developed Measures of Australia's Progress](#)
- [Notions of progress](#)
- [Approaches to measuring progress](#)
- [Choosing the progress indicators](#)
- [Linkages between aspects of progress](#)
- [Continuing development](#)

INTRODUCTION - WHY THE ABS DEVELOPED MEASURES OF AUSTRALIA'S PROGRESS

The past decades have seen growing public interest in assessing whether life in Australia and other countries is getting better, and whether the level of (or pace of improvement in) quality of life can be sustained into the future. The ABS commenced this work in 2000 and published the first major report in [2002](#). Since then major reports have been released in [2004](#) and [2006](#), and from 2005 onwards this summary status report has been released annually on the ABS web site.

The strong and growing international interest in this field is currently being coordinated by the OECD through its [Global project on measuring the progress of societies](#) and ongoing series of world forums. This project is grounded on the belief that the measurement of progress actually promotes progress. It is designed to support increased evidence based policy making in government and the community, encourage public debate and foster democracy. Although most regard [Gross Domestic Product \(GDP\)](#) as an important measure of progress, there are many who believe that it should be assessed in conjunction with other measures spanning society and the environment as well as the economy. This is the prime reason the ABS and many other countries look to an alternative approach (see '[National and International Initiatives](#)').

A national statistical agency like the ABS has an important role to play in providing the statistical evidence that will allow assessments of progress to be made by users - those who formulate and evaluate policy, researchers and the community. Through its publications, electronic releases of data and other means, the ABS provides a rich array of statistics relevant to assessing progress. But the very size of the information base means that it is not so accessible to many people. Moreover, most ABS products provide a window into one or a few aspects of life in Australia - say, health, education, income, water - whereas a comprehensive assessment of progress demands that these aspects of life are examined together.

One outcome of measuring and reporting on progress is to make sense of the world we live in. One of the purposes of using indicators to describe progress is that they represent key aspects of a complex reality in an informative way.

At the highest level, macro indicators can reduce the complexity of all the details and processes associated with the progress of society to a few (seemingly) simple measures. A good example is GDP which incorporates all of the detail of national economic activity in a single number which encapsulates the concept of economic growth. Because such measures are fairly easily digestible, they can be useful in encouraging economic debate and they lend themselves to publication in the media.

To be truly useful in facilitating change, however, the development of such indicators must involve other key players: such as researchers, the community and government. Researchers can assist in ensuring that there is a sound scientific basis for the concept or idea being measured. Community processes help articulate social preferences and shared understandings. Government provides the assessment of these preferences (through democratic political processes) and ultimately, develops and implements relevant policy ([Endnote 1](#)).

Measures of Australia's Progress (MAP) provides a concise selection of statistical evidence that will allow Australians to make their own assessment of whether life in Australia is getting better. MAP is not intended as a substitute for the full array of statistics - indeed, the ABS hopes that many readers will be led to read other ABS publications on the aspects of society, the economy and the environment that particularly interest them.

There are many views of what progress means and how it might be measured. Some issues that arise when considering measurement include:

- What core concept is being addressed?
- What model underlies the statistical evidence presented? - in particular, the complex interactions within and among society, the economy and the environment?
- On what basis was the selection and presentation of statistical evidence decided? What aspects of national life are included, and what statistical indicators are used to capture those aspects? What presentational model was adopted and why?
- Any assessment of whether life is getting better is unavoidably based on values and preferences, so whose values and preferences are reflected, and at what points during the writing (and reading) are they applied?

Different approaches to these issues might be taken by, say, a policy agency or an academic researcher or an interest group or a private citizen. This paper sets out the ABS approach.

WHAT IS MEANT BY "NATIONAL PROGRESS"?

Progress is one of a cluster of related concepts that also includes wellbeing, welfare, quality of life, sustainability and even happiness, for example:

- **Wellbeing or welfare**, which is generally used to mean the condition of being well, contented and satisfied with life. It typically includes physical, emotional, psychological and spiritual aspects of life.
- **Quality of life**, which is linked strongly to wellbeing and can also be used in a collective sense to describe how well a society satisfies people's wants and needs.
- **Sustainability**, which considers whether an activity or condition can be maintained indefinitely. Although it has most commonly been used when considering the human impact on environmental systems (as in 'sustainable fishing'), it can also be extended to social and economic systems.

The ABS provides statistics relevant to some of these concepts as they bear upon aspects of life in Australia – see, for example, [Measuring Wellbeing](#) (ABS cat. no. 4160.0), [Australian Social Trends](#) (ABS cat. no. 4102.0) and [Australia's Environment: Issues and Trends](#) (ABS cat. no. 4613.0).

The distinguishing features of MAP are that it adopts progress as its central concept and that it tries to take a comprehensive view of progress, embracing the social, economic and environmental aspects of Australian life.

MAP does not provide a tight definition of progress; rather its aim is to provide statistical evidence to test whether life in Australia is getting better. Some readers of MAP have argued that the ABS should make explicit its definition of national progress, and even that the ABS should describe the future state towards which Australia should be progressing. In the ABS's view, specifying such a desired future state would be inappropriate for a national statistical agency. It is, however, possible to say some more about the notion of progress that underlies the design of MAP. Also, as discussed later, different Australians have different views of what constitutes progress.

[BACK TO TOP](#)

NOTIONS OF PROGRESS

Answering the question 'Is life getting better?' is not straightforward. It is clear, however, that to understand progress one must examine many aspects of people's lives - their health, the quality of their environment, their incomes, their work and leisure, their security from crime, and so on. So progress is multidimensional. Moreover, the dimensions of progress are interlinked. To earn more income, people may need to work longer hours and so have less leisure time. Increased industrial activity may generate more money to spend on health care, but it might also lead to more air pollution and hence to poorer health.

For this report, we have chosen to adopt progress as our primary concept. Progress here encompasses more than improvements in the material standard of living or other changes in the economic aspects of life; it also includes changes in the social and environmental areas. It encompasses:

- the major direct influences on the changing wellbeing of the Australian population;
- the structure and growth of the Australian economy; and
- the environment - important both as a direct influence on the wellbeing of Australians and the Australian economy, and because people value it in its own right.

While most would agree on the desirability of progress in, say, health, work or environmental protection, there is no universally accepted view of the relative importance of these aspects of Australian life. This publication contains an array of objective measures of progress; readers can apply their own subjective valuations to decide whether that array of measures implies that Australia is, on balance, progressing and at what rate. The measures (or indicators) can be loosely associated with one of the three broad domains of progress (society, economy and environment), although some relate to several domains. But the number of indicators associated with a domain is not a measure of the domain's relative importance to overall national progress.

This publication focuses on aspects of progress that are, in principle, susceptible to some objective measurement (e.g. life expectancy and educational qualifications). We have tended to avoid indicators that are either intrinsically subjective (e.g. happiness) or, while somewhat more objective, do not at present have generally agreed measures (e.g. political freedom). These aspects of life are important to Australians, but they do not yet lend themselves to statistical expression. That said, the ABS acknowledges there is growing interest in life satisfaction (or happiness) as an important aspect of life in Australia. A feature article which outlined some of the research into '[Life satisfaction](#)' and the issues associated with its measurement was published in 2006.

Various temporal perspectives are provided within the publication. The major focus is on the history of progress over the past ten years in key social, economic and environmental aspects of Australian life. But a snapshot of the current (or, more strictly, recent) condition of the Australian society, economy and environment is also provided.

We have not made forecasts or entered into any direct discussion of sustainability. But we have, for some aspects of progress, reported on whether Australian stocks of assets (human, natural, produced and financial, and social assets) are being maintained.

Many aspects of progress relate to one another, and it is important to understand some of those links when assessing overall progress. The issues of concern that are considered span important aspects of life in Australia and enable readers to assess the country's capacity to maintain a healthy society, economy and environment. A feature article describing the '[Relationships between the domains of progress](#)' was published in 2008.

[BACK TO TOP](#)

APPROACHES TO MEASURING PROGRESS

Mechanisms for choosing aspects of progress

We considered three broad approaches to choosing what aspects of progress to measure:

- referring to international standards or practice
- referring to current policy issues and debates
- referring to the views of stakeholders and the general Australian public.

International standards or practice

Some international statistical initiatives, such as the United Nations' [Human Development Index \(HDI\)](#),

consider only a very few issues of concern common to all nations and so take quite a narrow view. (The HDI uses life expectancy, education and command over resources needed for a decent living (income) to assess development.) Other initiatives use a larger number of issues. But some issues of concern in Australia are almost uniquely Australian (salinity, for example, affects few other countries; and while much of western Europe is preoccupied with road congestion, this is not (yet) a major issue here - at least not when compared to the scale of congestion problems in the UK, for example). We examined international standards and publications when listing aspects of progress. But because of this publication's Australian focus, we did not judge it necessary to confine our list to aspects of progress for which international comparisons are possible. On occasion we refer to other countries' data when they are useful for setting Australian progress in context (in the area of health, for example). An article published in 2006 compares some key progress indicators across OECD countries ('[Some International Comparisons of Progress](#)').

Policy issues

Some statistical initiatives aim to choose measures which relate directly to government policy - the European System of Social Indicators, for example. Many aspects of progress included in this publication are potentially useful for assessing policy. However, they were not chosen with that in mind. Measures of Australia's Progress is meant to inform public discussion of national progress, rather than be used as a scorecard for government policy.

Public opinion

Other projects in this field have asked the public about what aspects of progress should be measured. Approaches used or suggested include:

- appealing to the choices and emphases expressed in current government policy (on the ground that policy reflects preferences expressed by the electorate);
- using opinion polls and other attitudinal data to assess the relative importance that people place on different aspects of national life; and
- using polling or otherwise, to make a direct, summary assessment of whether Australians feel that life has become better or worse.

In the ABS's view, these approaches may be appropriate for other investigators and other purposes, but they are not appropriate for a national statistical agency.

We have not polled members of the public directly, but we have gathered broad views about what should be measured - first, by directly consulting stakeholders and experts in the fields of social, economic and environmental measurement; second, by distilling the views expressed during the ABS regular user group discussions regarding what data should be collected and published; and third, during a wide-ranging consultation process (in 2001 when the first issue of Measures of Australia's Progress was being written, and in further consultations after it was released). The second edition (2004) reflected changes arising from that feedback. To maintain consistency in reporting over time we have not made any major changes since then but plan to review the publication and progress indicators in the near future.

Whichever mechanism is used, it is important to remember that society's views of progress, and of what is important, change over time, and that there are also some aspects of progress - governance and democracy, for example - that are seen as important now, but for which there are no agreed statistical measures yet. The issue of ongoing statistical development is discussed in more detail at the end of this section.

ALTERNATIVE VALUES AND PREFERENCES

<i>Whose values and preferences</i>	<i>Publication and author(a)</i>
Community priorities	<i>Tasmania Together,</i> Tasmanian Parliament
Government policy priorities	<i>The European System of Social</i> <i>Indicators,</i> The European Union
International priorities	<i>The Human Development Index,</i> United Nations

(a) See [National and International Initiatives](#) for more information.

THE TREATMENT OF VALUES, PREFERENCES AND EMPHASES

Any overall assessment about whether life is getting better unavoidably appeals to values and preferences.

Most obviously, values and preferences are invoked when readers survey any body of statistical evidence and make their assessments about the direction and pace of progress. For example, faced with statistics revealing that the life expectancy of Australians has lengthened during the past decade, average income has risen and more land has been degraded by salinity, one reader may judge that there has been progress and another that there has been regress.

Some commentators on MAP have argued that issues of value and preference must also be faced by the writers of such a publication. How, for example, does one decide which aspects of national life should be included, or which statistical indicators should be used to encapsulate those aspects? How does one decide on the balance of the publication across the various aspects of national life? Choices of this kind must be made - otherwise, the ABS would simply point readers to the full array of statistical publications and invite them to make their own selection of evidence and assign their own weightings. Such a course may be suitable for some experts, but would be unhelpful to most people.

Deciding how measures of progress should be presented

Three broad approaches to presenting the chosen indicators of progress were considered - the one-number approach; the integrated accounting approach; and the suite-of-indicators approach.

The one-number approach combines data about progress across a number of fronts (such as health, wealth and the environment) into a single composite indicator. Such composite indicators can be set in contrast with narrower indicators such as GDP. A single composite indicator of progress is very appealing, and while a range of measures have been proposed, further work is required to overcome some of the conceptual and technical limitations that need to be addressed for any one measure to gain widespread endorsement . (See the box below for more information on 'one-number' approaches.)

The accounting framework approach presents social, economic and environmental data in one unified system of accounts, measured in various units. Potentially this is a powerful tool for analysts, and a detailed

set of accounts will complement indicators. However, such a complex system may be too difficult to interpret for anyone wishing quickly to form an overall view about Australian progress. Most importantly, Australia is still a long way from being able to develop such a system, although some environmental accounts (e.g. energy) have been developed to link the economy and the environment. The Dutch System of Economic and Social Accounting Matrices and Extensions (SESAME) is one of the most mature sets of integrated accounts - more details of SESAME can be found in '[National and International Initiatives](#)'.

The suite-of-indicators approach sets out key aspects of progress side-by-side and discusses the links between them; readers make their own evaluations of whether the indicators together imply that Australia is on balance progressing and at what rate. This is the approach used in MAP (see the chapter '[How the progress indicators are presented](#)'). The approach makes no overall assessment about whether the array of statistical indicators presented implies that life is getting better or worse. Instead, the suite of indicators leaves each individual reader to apply their own values and preferences to the evidence, and to arrive at their own overall assessment of national progress.

The ABS already publishes sets of indicators relating to social, economic and environmental concerns. Measures of Australia's Progress brings together all three domains by providing a set of headline indicators of progress that are tracked over time. In our view, this approach strikes a balance between the potential oversimplification of the one-number approach and the complexity of the accounting framework approach. The approach has been used by other countries, for example in the United Kingdom.

ALTERNATIVE PRESENTATIONS

Suite of indicators	Securing the Future , United Kingdom Department of the Environment, Food and Rural Affairs
One number	The Genuine Progress Indicator , The Australia Institute
Integrated accounting framework	SESAME, Statistics Netherlands

(a) See [National and international initiatives](#) for more information.

ONE-NUMBER APPROACHES TO MEASURING PROGRESS

Although a good deal of effort has been put into trying to develop a single measure of progress (most notably the [Genuine Progress Indicator](#), and the [Human Development Index](#)), consensus about the merits of the approach and about particular implementations still appears a long way off. There is no doubt that composite indicators are appealing. The demand for an alternative to that important indicator, GDP, is an argument in favour of a one-number approach.

Difficulties arise, however, when one wishes to combine several indicators into one number. The components of composite indicators are usually measured in different units - life expectancy (in years), income (in dollars), air pollution (in particles per volume of air), etc. Some compilers of composite indicators express the components in index form, then calculate a weighted or unweighted mean; others convert the components to a common unit of measurement, typically some estimate of their economic value or cost. But neither

technique removes the basic issue - namely, that any composite indicator is based on some judgment regarding the relative weights to be applied to the components. Is a one-year increase in average life expectancy to be weighted more heavily than, less heavily than or equally with a 5% decrease in greenhouse gas emissions?

There is, therefore, a danger that a composite index will oversimplify a complex system and give potentially misleading signals.

There is still a debate about extending the scope of economic valuation into non-economic areas. Although attaching dollar values to changes in life expectancy, say, is usually done for methodological convenience, it might send the wrong signals. For example, E.F. Schumacher wrote, "To press non-economic values into the framework of the economic calculus...is a procedure by which the higher is reduced to the level of the lower and the priceless given a price".

POTENTIAL SHORTCOMINGS OF THE SUITE-OF-INDICATORS APPROACH

Although we adopted the suite-of-indicators approach, it is not without its problems.

- The choice of indicators could not be made using statistical criteria alone; it has required us to exercise judgment albeit based on the views of experts. Any of thousands of measures of progress could have been chosen, but we present just 14 headline dimensions, most of which are represented by one headline indicator. Although we used a set of criteria to select headline indicators, there is an element of judgment, both in choosing the dimensions of progress to include and in choosing the statistical measures for those dimensions of progress.
- We have not included indicators for every aspect of progress that some Australians regard as significant. Some (such as a happiness indicator) are not included because such areas of progress are inherently subjective (although we did discuss the issues around ['Life satisfaction and measures of progress'](#) in a feature article in 2006). Some indicators (such as a single indicator for family and community) are not identified because there is not yet a consensus about the concept that one should measure or indeed about whether or not progress in that dimension can be assessed with reference to a single indicator. Some are not yet included because ABS data construction work or other statistical development is still in progress.

[BACK TO TOP](#)

CHOOSING THE PROGRESS INDICATORS

The progress indicators presented in this publication were chosen in four key steps.

- First, we defined three broad domains of progress (social, the economy and the environment).
- Second, we made a list of potential progress dimensions within each of the three domains.
- Third, we chose a subset of dimensions for which we would try to find indicators, and determined whether each would be a headline or supplementary dimension.
- Fourth, we chose an indicator (or indicators) to give statistical expression to each of those dimensions.

This was an iterative process and several steps were revisited after listening to the views of the many people

we consulted during the publication's development. More information about our selection of dimensions and indicators is provided in the section - ['A framework for measuring progress'](#).

Domains of progress

Most commentators consider that progress relates to issues clustered around broad areas of concern (domains of progress). Each domain in turn comprises a number of dimensions. Domain boundaries can be drawn in several ways.

- The two-domain view: human concerns and environmental concerns.
- The three-domain view: economic concerns, societal concerns, and environmental concerns.
- The four-domain view: concerns about aggregate material wellbeing and economic development, society and equity, democracy and human rights, and the environment and nature.

In choosing measures for this publication we adopted the three-domain view, although in presenting the measures we have grouped them into four areas of progress by splitting the social domain into aspects that focus more directly on individuals and those that relate to living together.

The three domains comprise one system and are used as a convenient vantage point from which to assess progress. They do not purport to reflect a model of a world in which society, the economy and the environment can be separated: the economy depends on a functioning society which in turn depends on a functioning environment and economy. And although some concerns can, for the convenience of discussion, be attached loosely to society, the economy or the environment, they are all of importance to other domains - education and training, and work, for example, are of both social and economic importance; air quality is of social, economic and environmental importance.

FROM DOMAINS TO DIMENSIONS

Within each of the three broad domains of progress we looked for a concise set of dimensions that would be considered its basic components.

Society. We began by considering key dimensions of social concern, which are underlaid by a view of fundamental human needs and aspirations. The ABS program of social statistics is guided by a social concerns framework, the design of which has drawn on many other frameworks and initiatives, such as those developed by the UN, the OECD and the European Union.

Economy. We began with the systems of economic accounting that guide the ABS program of economic statistics, and concentrated on the major stock and flow variables represented in those systems.

Environment. We began by considering major ecosystems and environmental resources that are recognised in international frameworks such as the System of Economic and Environmental Accounting.

Dimensions of progress

To identify the major dimensions, the three domains were considered in detail and partitioned into a number of dimensions of progress to ensure that the important aspects of social, economic and environmental progress were considered.

Once a list of dimensions of progress that might be presented had been compiled, we selected the subset that would be presented. These were divided into headline and supplementary dimensions. A balance had to be struck - if we showed too many dimensions, readers would not be able to assimilate them; if we showed too few, important aspects of progress would be omitted, and the overall picture might be biased. Ten to twenty dimensions seemed about right, and the choice of those was guided by a wide variety of people from inside and outside the ABS.

Currently, MAP is structured around 14 headline dimensions which reflect key aspects of life in Australia. Most are represented by a single headline indicator, but some, such as the natural landscape, use more than one. In addition, there are five supplementary dimensions, which although not given headline status are included in MAP in recognition of their relevance to the progress story.

During the design of MAP, we were guided by past and current ABS consultations. The ABS has a systematic program of consulting users of statistics about our statistical frameworks, surveys, products and analyses. Through this program, thousands of government agencies, academic researchers, businesses and business councils, community organisations and individual Australians have told the ABS what they think it is important that we measure. Our initial choices were tested through several further rounds of consultation undertaken specifically for MAP.

The final choice of measures was made by the ABS after taking account of the full spectrum of views. In so far as such selections are value-driven, they are distilled from the values and emphases expressed by the user community.

DECIDING WHAT ATTRIBUTES TO MEASURE

Once the ABS had decided on the suite-of-indicators presentation style and on the domains and dimensions of progress, there were still choices to be made regarding the characteristics or attributes of each dimension that should be measured. This is best explained through an example - say, the Health dimension. A comprehensive statistical compendium about health in Australia might present data on:

- health outcomes / the health status of the Australian people - e.g. life expectancy or the occurrence of disease or disability.
- health risk factors / pressure points - e.g. patterns of diet, exercise, smoking and occupation that might point to future health outcomes.
- financial and other resources (or inputs) expended on health improvement - e.g. government and private current and capital expenditures, the health workforce.
- process measures - e.g. the number of people receiving health treatments.
- performance metrics - e.g. productivity, efficiency and effectiveness ratios for health service delivery.

Whenever the available statistics support it, MAP focuses on outcomes, that is on things that provide direct measures of whether life in Australia has been getting better. For our headline health indicator, we sought a measure that encapsulates major elements of health outcomes for the whole Australian population. And the best available single measure at present is life expectancy at birth, which is supplemented by other aspects of outcomes such as the burden of disease.

For this and other dimensions of progress, statistics on other attributes are also presented. But the aim is

always to assist the reader to make an overall assessment of historical trends in outcomes or of key influences on outcomes. So for example, in the major reports the data on life expectancy trends and the burden of disease are supplemented by data on risk factors such as obesity, exercise and smoking - to assist readers who are interested in forming a judgment about past influences on (and the likely future course of) health outcomes.

In the major reports, for several environmental dimensions, outcome-based data are supplemented by discussions of the programs and resources directed to environmental amelioration, such as conservation reserves, revegetation and other efforts to address salinity, rates of water use, and so on.

The data on educational attainment are supplemented by process measures such as school retention rates that influence past and future trends in attainment.

The data on income and wealth are supplemented by performance metrics such as competitiveness that exert a key influence on past and future improvements in material wellbeing.

Indicators of progress

Our next step was to find an indicator to express each of these dimensions of progress. Our selection of indicators was guided by expert advice and by the criteria described in the box below.

Such a small set of indicators cannot paint a full picture of progress, and so supplementary indicators are included. These are presented in the major MAP reports. Some supplementary indicators give more information about dimensions of progress that are already represented by a headline indicator; others extend beyond the dimensions covered by the headline indicators.

We recognise that our sifting process means that MAP is both partial and selective - partial because not every dimension of progress is included, and selective because progress in each of the included dimensions is measured using just a few indicators.

The set of headline indicators plays a special role and particular considerations of values and preferences arise. While in the major reports MAP presents several hundred indicators overall, the more compact suite of headline indicators, covering the headline dimensions, is presented to help readers gain a quick understanding of the bigger picture about national progress. Accordingly, these are updated each year in the web-based report.

Headline indicators are distinguished from others by their capacity to encapsulate major features of change in the given aspect of Australian life. An additional criterion was applied to them - namely, that most Australians would agree that each headline indicator possessed a 'good' direction of movement (signalling progress, when that indicator is viewed alone) and a 'bad' direction of movement (signalling regress, when that indicator is viewed alone). This good-direction / bad-direction distinction raises unavoidably the question of values and preferences.

Once the ABS had drafted its initial list of candidate headline indicators, it undertook extensive consultation to test whether the list accorded with users' views. Whether a reader agrees with the ABS choice of headline indicators or not, he or she is able to peruse the whole suite of several hundred indicators in MAP and to

assign high weight, low weight or no weight to each, as his or her own values and preferences dictate.

Some readers of MAP have tried to infer an ABS view about the relative importance of the different aspects of Australian life from the number of aspects discussed under the various headings, or from the number of headline indicators or the number of indicators overall. No such inference can or should be drawn. It is not for the national statistical agency to say what relative importance should be accorded to, say, changes in health, income or air quality. The ABS based its decision about how many indicators to present not on relative value but on statistical grounds - is it possible to find one or a few indicators that would encapsulate the changes in the given aspect of life? Is it possible to sum or otherwise combine indicators? To illustrate, changes in national wealth can be summarised well in one indicator (real net worth per capita), whereas half a dozen indicators are needed to depict significant changes in knowledge and innovation.

The place of values and preferences in MAP is well illustrated by its treatment of income distribution and equity. Many Australians believe that a more even distribution of income would represent progress; some would argue that, other things equal, any shift to more even distribution would be an improvement; others would argue only for a somewhat more even distribution than at present - say, one that reduces extreme disparities between high and low incomes. Other Australians would not accept that more even distribution of income would represent progress. Thus, when developing MAP, the ABS decided that measures of income distribution should appear only as supplementary indicators, not as headline indicators. Likewise, associated with many other dimensions of progress, MAP compares and contrasts the circumstances of different groups in the population.

CRITERIA FOR PROGRESS INDICATORS

When deciding which statistical indicators should be used to encapsulate each aspect of Australian life, we did not have a comprehensive or long-standing body of users' advice to rely upon. For some aspects - health, crime, income, productivity and air quality, for example - there was already some broad consensus regarding indicators that would meet MAP's criteria. But for other aspects - social capital, knowledge and innovation and biodiversity, for example - the effort to develop statistical indicators is more recent, and stakeholder agreement has not yet been reached. Thus, during the development of MAP, the ABS undertook wide-ranging consultation with experts and the general community of users regarding the indicators that would be ideal for each aspect of Australian life and the best approximations to those ideal indicators that are currently available. For the newer or less settled aspects, MAP generally provides an array of indicators and invites readers to form a view about progress.

Our first step was to take each dimension of progress in turn, and to ask 'Why is this dimension particularly important to Australia's progress? What are the key facets of progress in that dimension that any headline indicator should seek to express?'

There were usually several competing indicators that might be included. We chose among them by reference to criteria, such as the following.

Indicators should focus on the **outcome** rather than, say, the inputs or other influences that generated the outcome, or the government and other social responses to the outcome. For example, an outcome indicator in the health dimension should if possible reflect people's actual health status and not, say, their dietary or smoking habits, or public and private expenditure on health treatment and education. Input and response

variables are of course important to understanding why health outcomes change, but the outcome itself must be examined when one is assessing progress.

It was also judged important that movements in any indicator could be associated with progress by most Australians. For instance, one might consider including the number of divorces as an indicator for family life. But an increase in that number is ambiguous - it might reflect, say, a greater prevalence of unhappy marriages, or greater acceptance of dissolving unhappy marriages.

Applying this criterion depends crucially on interpreting movements in one indicator, assuming that the other indicators of progress are unchanged. For example, some would argue that economic growth has, at times, brought environmental problems in its wake, or even that the problems were so severe that the growth was undesirable. Others would argue that strong environmental protection might be retrograde to overall progress because it hampers economic growth. However, few would argue against economic growth or strong environmental protection if every other measure of progress was unaffected: that is, if growth could be achieved without environmental harm, or if environmental protection could be achieved without impeding economic growth. Of course, although keeping other things equal might be possible in theory, it seldom, if ever, occurs. The links between indicators are important, and MAP both analyses trends in individual indicators and discusses relationships among them.

In the view of the ABS, ideally a good headline indicator should:

- be relevant to the particular dimension of progress
- where possible, focus on outcomes for the dimension of progress (rather than on the inputs or processes used to produce outcomes)
- show a 'good' direction of movement (signalling progress) and 'bad' direction (signalling regress) - at least when the indicator is considered alone, with all other dimensions of progress kept equal
- be supported by timely data of good quality
- be available as a time series
- be available at a national level
- be sensitive to changes in the underlying phenomena captured by the dimension of progress
- be summary in nature
- preferably be capable of disaggregation by, say, geography or population group
- be intelligible and easily interpreted by the general reader.

For some dimensions of progress, it is not yet possible to compile an ideal indicator meeting all these criteria. In these cases an example of a relevant indicator, which sheds light on one aspect of the dimension of progress, has been presented.

[BACK TO TOP](#)

LINKAGES BETWEEN ASPECTS OF PROGRESS

A change in one aspect of national life is almost always associated with changes in others. Even if the linkages between the different aspects were relatively simple ('when this variable goes up by this amount, that variable goes down by this amount'), the occurrence of linkages poses problems for anyone developing a publication like MAP. And, of course, real-world linkages are much more complex.

One must decide how to present linkages between aspects of progress to the reader. To present particular linkages rigorously (and to present the full network of linkages comprehensively), one would need to provide a model of interactions between and within Australian society, economy and environment. The ABS puts considerable effort into developing statistical frameworks and data models that encapsulate the characteristics of entities (individuals, households, businesses, government agencies and other organisations) and the transactions, interactions and relationships among them. That work is informed by and seeks to assist 'scientific' models of the world; but developing such scientific models is not the business of a statistical agency. And a full-blown presentation of such models would be unsuitable for a publication like MAP.

On the other hand, ignoring linkages between the different aspects of progress could imply that an assessment of past progress can be achieved by a simple summation of changes in the indicators, or that a vision of future progress can be achieved by sketching a desirable or probable trajectory for each of the indicators. To forestall such an oversimplified view, we provide a general discussion of relationships among different aspects of progress in the introductory paper '[How the progress indicators are presented](#)'. In addition, a feature article describing '[Relationships between the domains of progress](#)' was published in 2008. These discussions have been distilled from the large body of Australian and overseas research, and have been tested through user review.

[BACK TO TOP](#)

CONTINUING DEVELOPMENT

These headline indicators form a core set of statistics for reporting on Australian progress. But those we have chosen will change over time, because, for example:

- thinking may change about what is important to national progress
- there may be conceptual developments relating to one or more dimensions of progress (such as social cohesion)
- there may be statistical developments that allow us to measure aspects of progress for which we do not at present construct indicators (such as human capital).

The commentary in the paper '[A framework for measuring progress](#)' discusses what an ideal progress indicator might be for each dimension. The conceptually ideal indicators may, in some cases, help guide the continuing development of Measures of Australia's Progress.

[BACK TO TOP](#)

ENDNOTES

1. OECD, 2005, [OECD 2005 Statistics, Knowledge and Policy: Key Indicators to Inform Decision Making](#) 'The Reduction of Complexity by Means of Indicators: Case Studies in the Environmental Domain'.
- 2.

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[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

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A FRAMEWORK FOR MEASURING PROGRESS

- [Introduction](#)
- [General approach: Three key questions](#)
- [Question 1: What is 'progress'?](#)
- [Question 2: Progress in each domain](#)
- [Question 3: What indicators could most effectively be used to assess progress related to these dimensions?](#)

INTRODUCTION

This paper describes the framework used by the ABS to underpin MAP. We have used a framework built on social, economic and environmental domains to help in selecting measures of progress. Like frameworks in general, the MAP framework is a tool to support statistical measurement, data analysis and analytical commentary. This framework has evolved slightly since the first report in 2002 as we have sought better ways to combine interrelated and sometimes overlapping dimensions into a coherent presentation of progress.

Frameworks have two main purposes.

At one level, frameworks can break the world into manageable pieces by providing a map of the conceptual terrain surrounding an area of interest. In other words frameworks can define the scope of an enquiry, delineate the important concepts associated with a topic and organise these into a logical structure. Rather than asking 'how should we measure progress?', we can use a framework to consider, separately, ways to measure progress in social, environmental and economic concerns. When considering progress, the choice of a view is largely a matter of convenience; the view is a tool to help choose or present areas of progress and progress indicators, but it does not have to purport to be a model of a world in which society, the economy and the environment are separated. Such a framework can help in the preparation and presentation of a

publication. It can also begin to set out the links between the various dimensions of progress: paid work for example is important to the economy and to people's sense of self-worth.

At another level, frameworks can actually aim to provide a theory of the way the world works. Such frameworks set out to demonstrate how the various aspects of progress fit together and relate to one another. Such theoretical frameworks often require value-judgements about what overall progress means.

There is no one international framework on which everyone agrees. Some international statistical initiatives, such as the United Nations' [Human Development Index \(HDI\)](#), consider only a very few issues of concern common to all nations. Others, like the proposed set of [Statistics for sustainable development](#) developed by the joint working group coordinated by the United Nations Economic Commission for Europe, use a larger number of issues. But it is unlikely that any international initiative will include all aspects that are important to any one country.

Just as there is no one view of progress, there is no single framework. We have listened to many views when developing this publication, and recognise the divergence of opinion that exists. We welcome comment and feedback from readers to assist in evolving the ideas and framework presented here as the basis for the way we have chosen to measure progress in Australia.

[BACK TO TOP](#)

GENERAL APPROACH: THREE KEY QUESTIONS

This ABS framework is built around three fundamental questions.

- **Question 1:** What do we mean by progress overall?
- **Question 2:** How can we describe progress across society, the economy and the environment, and what dimensions of progress should be included?
- **Question 3:** What indicators best encapsulate progress in each dimension (noting that some desirable indicators need to be developed in the future or are too subjective for the ABS to use in the foreseeable future?)

The rest of this paper describes the ABS approach to answering these questions. It also describes the arrangement of the dimensions in this publication.

QUESTION 1: WHAT IS 'PROGRESS'?

Throughout this publication, three principles are key when considering progress.

- First, we define progress - in its broadest sense - to be synonymous with life getting better.
- Second, progress is multidimensional. Whether or not we are progressing depends on a variety of areas of individual and societal wellbeing, the health of our economy and the state of our environment. Measures of progress for each dimension are necessary.
- Third, any assessment of whether Australia is on balance progressing and at what rate depends on the personal evaluations that readers place on the relative importance of progress in each dimension.

With these three principles as a starting point, the ABS set out to develop a framework within which progress could be measured. This framework has been developed in consultation with a broad cross section of

Australian society. It provides a basis from which the measures of progress in MAP were selected: guiding both the selection of dimensions of progress (those aspects of life seen as crucial to progress) and the statistical indicators of progress for each dimension. More detail is included in the essays '[Measuring Progress - an ABS approach](#)' and '[How the progress indicators are presented](#)'.

THE THREE DOMAINS OF PROGRESS

We noted above that progress is multidimensional. The various dimensions that comprise progress can be clustered in many ways. When developing MAP we organised our thinking across the three broad areas:

- social progress
- economic progress
- environmental progress

Our choice was largely a matter of convenience as a tool to help choose the dimensions to include. It does not purport to be a model of a world in which society, the economy and the environment can be separated.

We have chosen three domains of progress, and described what constitutes progress overall. But what constitutes progress in each domain?

[BACK TO TOP](#)

QUESTION 2: PROGRESS IN EACH DOMAIN

We have defined progress to be synonymous with life getting better. We characterise progress in each domain as follows.

- Social progress equates to increases in the wellbeing of the population; a reduction of threats to, and increases in social cohesion; and protection and enhancement of democratic rights. (Social wellbeing is multidimensional and described in more detail later on.)
- Economic progress equates to enhancing the nation's income (broadly real per person levels of consumption) while at least maintaining (or possibly enhancing) the national wealth that will support future consumption.
- Environmental progress equates to a reduction of threats to the environment and improvements in the health of our ecosystems.

Whether there has been progress overall will depend on each reader's own assessment of the relative importance of progress in each domain. Moreover, progress in any one domain might go hand in hand with progress in another. That is, progress in one area can reinforce progress in another: economic growth for example might provide more money for government to spend on environmental protection. But progress in one domain might also require some trade-off against progress in another: for example, economic growth in certain sectors might create more greenhouse emissions.

We now have a broad characterisation of what progress in each domain amounts to. The next question we asked was: 'In order to assess progress, what dimensions (aspects) of each domain should be considered?'

SOCIETY

Social progress involves increases in the wellbeing of the population; a reduction of threats to, and increases in social cohesion; and protection and enhancement of democratic rights. Some of these aspects of life focus more directly on the individual while others refer to the way we live together in society.

In order to assess progress, what dimensions (aspects) of this domain should be considered?

Individuals

- Health
- Education and training
- Work

Living together

- Family, community and social cohesion
- Crime
- Democracy, governance and citizenship

Why these dimensions are important

Individuals

Health: People hope to have a long life, free from pain, illness or disability. Good health for all brings social and economic benefits to individuals, their families and the wider community.

Education and training help people develop knowledge and skills that may be used to enhance their living standards, contribute to society and sustain and extend their cultural traditions. For an individual, educational attainment is widely seen as a key factor to a rewarding career. For the nation as a whole, having a skilled workforce is vital to supporting ongoing economic development and improvements in living conditions.

Work: Paid work is the means through which many people obtain the economic resources needed for day to day living, for themselves and their dependants, and to meet their longer-term financial needs. Having paid work contributes to a person's sense of identity and self-esteem. People's involvement in paid work also contributes to economic growth and development.

Living together

Family, community and social cohesion: Families and communities are core structural elements in society - basic building blocks of national life. Families provide guidance on the social values underlying civil society and the care generated within the family supports the development of healthy functioning individuals. The vast range of services provided within communities by groups, clubs and charitable organisations are a crucial adjunct to support the role of the family. The quality and strength of people's relationships and bonds with others - their family, friends and the wider community - are important ingredients of the level of social cohesion. And a more cohesive society is one in which communities are strong and inclusive.

Crime takes many forms and can have a major impact on the wellbeing of victims, their families and friends, and the wider community. Those most directly affected may suffer financially, physically, psychologically and emotionally, while the fear of crime can affect people, restrict their lives in many ways, reduce levels of trust

and impact on social cohesion. There are other costs as well, including the provision of law enforcement services and corrective services. Although government agencies take on the major responsibility for law enforcement, many businesses and householders also bear costs in protecting against or paying for the consequences of crime. A reduction in the incidence of crime is linked to greater social cohesion.

Democracy, governance and citizenship: National life is influenced, not just by material qualities such as economic output, health and education, but also by many intangible qualities such as the quality of our public life, the fairness of our society, the health of our democracy and the extent to which the citizens of Australia participate actively in their communities or cooperate with one another.

Good, effective public governance helps to strengthen democracy and human rights, promote economic prosperity and social cohesion, reduce poverty, enhance environmental protection and the sustainable use of natural resources, and deepen confidence in government and public administration.

Gaps?

There are many different frameworks for assessing progress and wellbeing in this area. The ABS has a well-developed framework for measuring social wellbeing ([Measuring Wellbeing](#), cat. no. 4160.0). While MAP draws on this framework and covers all the aspects of social wellbeing identified, some aspects are treated differently. 'Culture and leisure' is considered as a supplementary dimension to the headline dimensions described above. Furthermore, due to their importance to economic as well as social wellbeing, housing and household economic resources have been included under the economic domain.

INEQUALITY AND MULTIPLE DISADVANTAGE

Inequality is one aspect of social progress that is not measured directly by these indicators.

Many people believe that the level of inequality in a society is a measure of its cohesiveness and that levels of disparity of opportunity in a society can be a threat to social cohesion. But many also recognise that the differences in reward for effort (which result in differences in material wellbeing across society) are an important, perhaps necessary, incentive in a western economy. And so it is very difficult to discuss progress in this area without making a value judgement about the level of inequality that may threaten social cohesion versus that needed to create incentive. An indicator based on changes in income distribution, for example, is unlikely to have unambiguously good and bad directions of movement upon which virtually all would agree (one of the criteria for MAP's headline indicators).

That said, information on the distribution of resources is included in MAP. Measures of the change in distribution of income, wealth and so on do not feature in the set of headline indicators, although some discussion about their distribution appears in relevant chapters in the major reports. Information indicating changes in the risk of economic hardship, however, is included as a headline dimension.

'[Multiple disadvantage](#)' in Australia was examined in a feature article published in 2004. This article considered a number of headline indicators side by side - health, income, education, work and housing. Although we did not assess progress, we looked at patterns of different types of disadvantage among various population subgroups.

THE ECONOMY AND ECONOMIC RESOURCES

Economic progress equates to enhancing Australia's national income (broadly the real per person levels of consumption) while at least maintaining (or possibly enhancing) the national wealth that will support future consumption. Since the economic resources available to individuals and families through household income and wealth shape our standard of living these aspects of life also are considered here.

In order to assess progress, what dimensions (aspects) of this domain should be considered?

- National income
- Economic hardship
- National wealth
- Housing
- Productivity

Why these dimensions are important

National income, reflects the capacity of Australians to purchase goods and services, and is a key indicator of material living standards. It is also important for other aspects of progress. Not all income is spent on the current consumption of goods and services. Income that is saved can be used to accumulate wealth in the form of, say, houses, machinery or financial assets. These assets can directly satisfy individual and societal needs, or can generate future income and support future consumption.

Economic hardship: Society generally accepts that people should have access to some minimum standard of consumption of goods and services. The presence of economic hardship that could preclude this minimum standard would be of societal concern.

National wealth: Along with the skills of the work force, a nation's wealth has a major effect on its capacity to generate income. Some produced assets (such as machinery and equipment) are used in income-generating economic activity. Some natural assets (such as minerals and native timber) generate income at the time of their extraction or harvest. Holdings of financial assets with the rest of the world (such as foreign shares, deposits and loans) return income flows to Australia. Other assets, such as owner-occupied dwellings, provide consumption services direct to their owners.

Housing provides people with shelter, security and privacy. Having a suitable and affordable place to live is fundamental to people's identity and wellbeing. For many people, purchasing their home provides both stability of tenure and the opportunity to build wealth through progressively building equity in a major economic asset.

Productivity: A nation's productivity is the volume of goods and services it produces (its output) for a given volume of inputs (such as labour and capital). The amount by which output growth exceeds input growth is the productivity improvement. Productivity is an important measure of economic progress and helps link changes in national income with changes in national wealth. Improvements in productivity mean the economy is using resources (capital, labour, energy or materials) more efficiently.

Gaps?

The System of National Accounts is a well developed framework for considering the workings of the economy. National income and wealth consolidate, respectively, economic stocks and flows. Productivity measures how efficiently economic inputs are used to generate income. Together, these headline dimensions account for key aspects of economic progress. We have complemented these national measures with economic hardship and housing which provide insight into income and wealth at the household level. Supplementary dimensions of Transport, Communication, Competitiveness and openness, and Inflation are also considered. Information on knowledge and innovation is included in the Productivity dimension.

THE ENVIRONMENT

Environmental progress equates to a reduction in threats to the environment and improvements in the health of our ecosystems.

In order to assess progress, what dimensions (aspects) of this domain should be considered?

- the quality of the natural landscape (land, water, biodiversity)
- the quality of the air and atmosphere
- the quality of oceans and estuaries

Why these dimensions are important

The natural landscape comprises Australia's land and water and the plants and animals that rely on them. The three are inextricably linked.

Land: The condition of the soil covering Australia's land has a critical impact on our terrestrial ecosystems. Our soil resources are an important natural asset, and their degradation is a significant concern to Australian farmers, governments and the general public.

Water is fundamental to the survival of people and other organisms. Apart from drinking water, much of our economy (agriculture in particular) relies on water. The condition of freshwater ecosystems has a critical impact on the wider environment.

Biodiversity: Our plants, animals and ecosystems bring important economic benefits, are valuable to society and are globally important. Native bushland has cultural, aesthetic and recreational importance to many Australians. Most importantly, the ways in which organisms interact with each other and their environment are important to human survival: we rely on ecosystems that function properly for clean air and water and healthy soil.

The air: Poor air quality has a range of negative impacts: it can cause health problems, damage infrastructure, reduce crop yields and harm plants and animals. Air pollution occurs both naturally and as a result of human activities. Australians consistently rank air pollution as a major environmental concern.

The atmosphere surrounding our planet plays a role in supporting life on earth, for example: oxygen is required to sustain living animals; a layer of ozone shields us from harmful ultraviolet rays from the sun; and greenhouse gases, predominantly carbon dioxide, maintain the surface temperature of the earth.

Estuaries and oceans: Our beaches, estuaries and wider marine ecosystems play an important role in Australian life. Our seas also support a vast array of life forms and many of our marine ecosystems are globally important.

Gaps?

These three dimensions encapsulate all of Australia and its ecosystems (the landscape, the seas that surround us; and the air around and above us). There do not, therefore, appear to be any conceptual gaps in this framework.

Now that Questions 1 and 2 have been answered, we have an understanding of progress in each domain and the dimensions of progress that should be measured. But which statistical indicators should we use to measure progress in each dimension?

[BACK TO TOP](#)

QUESTION 3: WHAT INDICATORS COULD MOST EFFECTIVELY BE USED TO ASSESS PROGRESS RELATED TO THESE DIMENSIONS?

For each dimension we discuss a conceptually ideal indicator and the best available proxy.

SOCIETY

Individuals

Health: An indicator describing how long Australians live, while simultaneously taking into account the full burden of illness and disability, would be a desirable summary measure of progress. Although such indicators have been developed, no time series is available. Life expectancy at birth is one of the most widely used indicators of population health. It focuses on length of life rather than its quality, but it usefully summarises the health of the population.

Education and training: An indicator that recognised the sum of all knowledge and skills held by people might be ideal, but is not available. The indicators of educational progress used in Measures of Australia's Progress measure the attainment of formal non-school qualifications, and the levels of participation in education and training. The headline indicator is the proportion of the population aged 25-64 years with a vocational or higher education qualification. The age range selected identifies an age group where most people have completed any initial non-school qualifications.

Work: Many aspects of work affect people's wellbeing, such as hours worked, job satisfaction and security, levels of remuneration, opportunity for self-development, and interaction with people outside of home. An ideal indicator of progress would reflect these and other aspects of work to measure the extent to which Australians' work preferences are satisfied. While a single indicator covering all these aspects is not available, useful indicators of progress may be obtained by looking at the extent to which people's aspirations for wanting work, or more work, are unsatisfied. The official unemployment rate is a widely used measure of underutilised labour resources in the economy, and one that relates to both the economic and social aspects of work.

Living together

Family, community and social cohesion are important aspects of society, but the way in which they contribute to progress is difficult to define and measure. Rather than present a headline indicator, we present some measures relevant to this dimension, structured around types of networks: bonding, bridging and linking. These are shown in greater detail in the major reports and selected summary measures are presented in the annual web report.

- Bonding - Families and family functioning: We present background information on family formation and dissolution and the caring role of families, as well as information on children without an employed parent.
- Bonding - Contact with friends and families: Contact with friends or family and greater participation in social activity build social cohesion through the reinforcement of bonding.
- Bridging and linking - Participation that occurs within the more formal social networks in the community: We discuss a range of information on aspects of progress including levels of volunteering and charitable donations, and cultural diversity and participation.
- Breakdown of social cohesion - homelessness, drug deaths and suicide - which reflect in part a lack of community support, are covered here.

Crime: Measuring the full cost of crime might provide an ideal single measure of progress in this area. But there is no well established means of doing this nor are there comprehensive data sources. Another way, albeit limited, of measuring progress in this dimension is to look at criminal offence victimisation rates. To this end we focus on personal and household crimes.

Democracy, governance and citizenship: Although people agree democracy is important, there is less agreement about how to measure progress in the strength and quality of our democracy. In theory democratic government has been characterised as having two underlying principles: popular control over public decision making and decision makers; and equality between citizens in the exercise of that decision making. The strength and health of our democracy in practice, however, is the product of many factors, not just the effectiveness of political institutions like Parliament, fair elections, an independent judiciary, equal laws and a free press.

Also important are the trust that citizens have in government and public institutions, and the degree to which they participate in civic and community life, and value and understand their rights and duties as citizens.

Democracy is not an uncontroversial subject (even if widely supported in principle) and there may be many different views about the choice of indicators necessary to measure progress in this dimension. There are many possible indicators that relate to governance, democracy and citizenship but aspects that are measured in MAP include: women in parliament, voter enrolment and turnout as well as invalid voting, the proportion of Australian residents who are citizens, participation in civic groups and organisations, women in other decision-making positions, environmental citizenship, and Indigenous participation in democracy and governance.

THE ECONOMY AND ECONOMIC RESOURCES

National income: Our measure of national income would ideally have a comprehensive coverage of real net disposable income (i.e. the amount that Australians can consume in aggregate, without reducing real national wealth).

The measure used in MAP embodies only some of the adjustments for the depreciation of wealth that should ideally be made. It is adjusted for the depreciation of machinery, buildings and other produced capital used in the production process, but not for the consumption of environmental assets for example. National income does not take account of some non-market activities (such as unpaid household work) that contribute to material living standards.

Economic hardship: An ideal indicator would identify changes in the extent to which people fall below minimum living standards, and the numbers of people that fall below. The problems of definition aside, measurement is difficult because it requires information about people's living standards. Such data are not available. The headline indicator focuses on changes in the average disposable (after tax) income of households close to the bottom of the income distribution. People in economic hardship are likely to have relatively low income and low wealth. The headline indicator provides no information about the number of people living in economic hardship. But it does provide information about how the income of those in hardship is likely to be changing.

National wealth: Our measure of national wealth would ideally have a comprehensive coverage of real net worth (i.e. the value of Australia's assets less the value of Australia's liabilities to the rest of the world). Assets would include all financial and non-financial assets over which ownership rights can be enforced and from which economic benefits can be derived by owners holding or using them.

The measure used in MAP excludes some assets which might ideally be embraced by this comprehensive definition (such as human capital and consumer durables) owing to measurement difficulties or to our decision to conform with the 'asset boundary' concept used in the Australian national accounts. A future wealth measure might include some of these further assets.

Housing: An ideal indicator might measure people's access to decent, affordable housing. At present, however, there is no single headline indicator to show whether housing circumstances have been getting better or worse. Instead we discuss the importance of this dimension using a variety of other measures including investment in housing, house prices and occupancy.

Productivity: Our measure of national productivity would ideally be derived from a comprehensive measure of output divided by a comprehensive measure of input. The measure used in MAP is not as comprehensive as this ideal measure. The numerator includes only the output of the 'market sector'; and the denominator includes only labour and capital inputs (not 'intermediate inputs' such as materials, services and energy used in the production process). A future productivity measure might have broader scope.

THE ENVIRONMENT

The natural landscape: An ideal indicator might consider all Australian biodiversity - the diversity and abundance of micro-organisms, plants and animals, the genes they contain and the ecosystems of which they form a part. Such a measure would reflect changes in the health of Australia's ecosystems including our land and water. But to measure change as comprehensively as this would be difficult, if not impossible. Instead we use a suite of indicators to discuss progress in three key components of the landscape: biodiversity, land and water.

- *Biodiversity:* We use two headline indicators: change in the conservation status of one small component

of faunal biodiversity: mammals and birds; and the clearance of native vegetation, itself a direct measure of the loss of floral biodiversity as well as a key threat to Australia's terrestrial biodiversity.

- The number of endangered birds and mammals: Compared with the ideal, this indicator ignores the vast majority of biological diversity. Also, changes to the list of threatened species should be treated cautiously. Species can be removed or added because of improved knowledge, not because they became more or less endangered. But over time, if the numbers of species that are threatened increase substantially there is reason to believe that certain species are declining. As such, monitoring change among birds and mammals can alert us to threats to biodiversity and the need for monitoring other species.
- Land clearing: Ideally, the headline indicator would consider the area of native vegetation cover in Australia. Such an indicator would require a weighted measure of the extent and intensities of land clearance and modification: apart from the practical difficulties of putting weights on different types of clearance, few accurate time series data are currently available. For the time being, estimates from the National Greenhouse Gas Inventory (NGGI) are used. These estimates do not include all land clearance, but include the majority of intensive clearance of native vegetation.
- *Land*: Ideally, the headline indicator would measure the land area affected by different types of degradation, and perhaps place a dollar value on the cost of degradation to agriculture, infrastructure and the environment. It might also measure whether the ways we use the land that lead to degradation are continuing. But many forms of degradation overlap one another, and there is no single measure of the area of degraded land in Australia. We focus here on dryland salinity, a widespread form of soil degradation, the impacts of which are wider than lost agricultural production and include damage to water resources, biodiversity, pipelines, houses and roads. It is linked to other forms of degradation such as soil erosion, is expensive to rectify and adversely affects agricultural or pastoral yields.
- *Water*. Ideally the headline indicator would consider the health of Australia's freshwater ecosystems. Changes in the quantity and quality of all surface and groundwater would be measured, together with impacts from factors such as invasive species and changes to river flow. But such data are unavailable for much of the country, so we focus on water use, and consider the proportion of Australia's water management areas within which water extraction is thought to be sustainable.

The air and atmosphere: An ideal indicator might encapsulate how both the quality of the air and the atmosphere is changing over time. But the factors impacting on local air quality and those which impact on the atmosphere more broadly are very different and so we consider these issues separately.

- *Air*: Air quality has direct impacts on human health and enjoyment of life, and is particularly an issue in urban areas. Ideally, a headline indicator would encapsulate all aspects of air quality, but pollution takes many forms and there is, as yet, no agreed way in which different pollutants could be combined into just one measure. Therefore we focus on urban air quality expressed as the concentration of fine particle pollutants in the atmosphere, a form of air pollution about which many health experts in Australia are most concerned.
- *The atmosphere*: The atmosphere is an essential component of all ecological systems on Earth. Global warming and climate change are potential threats to biodiversity and to all ecosystems, economies and societies. Ideally, the headline indicator would assess Australia's total greenhouse emissions. But it is difficult to measure emissions from some sources accurately, especially emissions from land clearing and agriculture. The headline indicator looks at Australia's net emissions (including those from land use change).

Oceans and estuaries: A wide range of environmental concerns are associated with our oceans and

estuaries. It is difficult to conceive of a single headline indicator that might measure the health of our marine ecosystems other than some measure of the total biodiversity within them. In place of a single headline indicator, we present a range of information, such as the intensity of fishing and the quality of our estuaries.

[BACK TO TOP](#)

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1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

INDICATORS OF PROGRESS

This table includes links to updated indicators for headline dimensions and to background material from MAP 2006 (cat. no. 1370.0) for the supplementary dimensions.

Headline dimensions	Headline progress indicators	Supplementary progress indicators	Other indicators
---------------------	------------------------------	-----------------------------------	------------------

Health

- [Life expectancy at birth](#)
- Proportion of people surviving to ages 25, 50 and 75
- Infant mortality rate
- Avoidable deaths
- Incidence of all cancer
- Incidence of heart attacks
- Burden of disease
- International life expectancy at birth
- Living with disability
- Causes of death

Education and training

- [People aged 25-64 with a vocational or higher education qualification](#)
- Education participation rate for those aged 15-19
- Year 7/8 to Year 12 apparent retention rate
- International level of higher education
- Education participation for those aged 15-64

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

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	<ul style="list-style-type: none">• Human capital stock• Education participation rates and attainment levels for those aged 15-64• OECD literacy rates, science, reading and mathematics• Indigenous to non-Indigenous education participation and attainment ratios• Female students as a proportion of all students	<ul style="list-style-type: none">• Level of highest non-school qualification for those aged 25-64	
Work	<ul style="list-style-type: none">• Unemployment rate	<ul style="list-style-type: none">• Labour force underutilisation rate• Proportion of people working• Long-term unemployment rate• Retrenchment rate• Unemployment to population ratios	<ul style="list-style-type: none">• Casual employees• People working part-time or longer hours (50 hours a week worked or more)• Average hours per week, full-time workers
National income	<ul style="list-style-type: none">• Real net national disposable income per capita	<ul style="list-style-type: none">• Real gross domestic product per capita• Real final consumption expenditure per capita• Real household consumption expenditure per capita• Net national saving as a proportion of GDP• Real industry gross value added• Real gross state income per capita• Terms of trade• Population in work	<ul style="list-style-type: none">• Selected measures of equivalised household disposable income• International comparisons of national income: Gross National income• International comparisons of national income: average annual GDP growth
Economic hardship	<ul style="list-style-type: none">• Average real equivalised	<ul style="list-style-type: none">• Indicators of economic	

[weekly disposable income of households in the second and third deciles of the income distribution](#)

situation by household composition

National wealth

- [Real national net worth per capita](#)
- Real national assets and liabilities per capita
- Real net capital stock per capita
- Economically demonstrated resources (minerals and energy) per capita
- Real net foreign debt
- Real gross fixed capital formation per capita
- Mean household net worth
- Mean value of selected household assets and liabilities

Housing

- Currently no headline indicator
- [Investment in dwellings](#)
- [House price index](#)
- [Households in dwellings requiring an additional bedroom](#)

Productivity

- [Multifactor productivity](#)
- Labour productivity
- Research and development expenditure as a proportion of GDP
- Investment in software as a proportion of GDP
- Managers and professionals as a proportion of total employment
- Proportion of businesses with web site or home page
- Hours worked and quality adjusted hours worked
- Proportion of businesses innovating

- [Threatened birds and mammals](#)
- [Annual area of land cleared](#)
- [Salinity, assets at risk in areas affected, or with a high potential to develop, salinity](#)
- [Water management areas, proportion where use exceeded 70% of sustainable yield](#)
- Trends in threatened species
- Mammalian extinctions
- Species-threatening invasive animals
- Proportion of ecosystems: area protected
- Weeds of national significance, distribution
- Native forest area
- Net water use
- Total water storage capacity of large dams
- Water diversions: Murray-Darling Basin
- River condition (biota) index
- Cattle and sheep numbers
- Natural and actual flows in the River Murray
- International comparison: Threatened bird species
- International comparison: Water abstraction per capita

The air and atmosphere

- [Fine particle concentrations, days health standards exceeded, selected capital cities](#)
- [Net greenhouse gas emissions](#)
- Days when ozone concentrations exceeded guidelines, selected capital cities
- Highest one hour averages of SO₂, selected regional centres v CO₂-e emissions, net, per capita and per \$ GDP
- Australia's greenhouse gas emissions for selected sectors
- Carbon dioxide concentrations
- Consumption of ozone depleting substances
- International comparison: net greenhouse gas emissions per capita

Oceans and estuaries

- No headline indicator
 - [Fish stocks subject to overfishing](#)
 - [Estuarine condition index](#)
 - Visitors to the Great Barrier Reef
 - Number of reported oil spills
-

Family, community and social cohesion

- No headline indicator
- [Children without an employed parent](#)
- [Voluntary work](#)
- Primary carers of elderly and disabled
- No participation in selected activities
- Proportion of children in lone mother families
- Suicide and drug-induced death rates
- (indicators in the Work dimension are also relevant)
- Family type
- Participation in religious activities
- Racism

Crime

- [Victims of personal crime](#)
- [Victims of household crime](#)
- Homicide rate
- Imprisonment rate

Democracy, governance and citizenship

- No headline indicator
- [Proportion of Federal parliamentarians who are women](#)
- [Proportion of eligible population enrolled to vote](#)
- Voter turnout and informal votes cast
- Federal Parliamentary election candidates
- Volunteering rates for management, committee and coordination work
- Proportion of eligible overseas-born residents who are citizens
- Proportion of executive managers and board members of ASX200 companies who are women
- Indigenous members of Federal parliaments and State and Territory legislative assemblies

Supplementary dimensions

Supplementary and other indicators

[Culture and leisure](#)

[Inflation](#)

- No indicators
- Consumer price index
- Domestic final demand price index
- Total final consumption expenditure
- Total gross fixed capital formation

[Competitiveness and openness](#)

- Trade weighted exchange rate
- Real unit labour costs
- Ratio of imports to GDP
- Ratio of foreign investment inflow to GDP

[Communication](#)

- Computer ownership and internet access, households

[Transport](#)

- Passenger vehicles per 1,000 people
 - Road fatalities
-

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Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

HOW THE PROGRESS INDICATORS ARE PRESENTED

- [Considering each indicator in turn](#)
- [How the indicators relate to one another](#)
- [Looking to the future](#)

Measures of Australia's Progress (MAP) portrays national progress using an array of indicators that measure change within different aspects of Australian life. The indicators provide the building blocks to which readers can apply their own evaluations to assess whether Australia is on balance progressing and at what rate.

Major MAP reports were released in [2002](#), [2004](#) and [2006](#). These contained detailed commentary on each dimension of progress, background information on how the ABS chose to measure progress and feature articles on topics of special interest. By and large, this paper discusses the way that the progress indicators are presented in the major MAP reports. It is also designed to be of interest to people who may be considering developing their own progress indicators, say at community level, or for those engaged in international projects to measure progress (see ['National and international initiatives'](#)).

The paper is also relevant to people reading this web-based issue of MAP which has been updated each year since 2005. The electronic version of MAP includes up-to-date statistics on each of the headline indicators together with selected supplementary information. Links are provided to detailed commentary on each indicator from the most recent major report. MAP on-line also includes background commentary on the development of MAP and easy access to all the feature articles from the main reports.

Readers can use the major MAP publication and the electronic version in three ways to assess progress:

- First, by examining the data and reading comments about each indicator's historical movements.

- Second, by reading the discussion of links between indicators.
- Third, by reading the comments about factors that influence change and the national assets that may support future progress (primarily main report).

CONSIDERING EACH INDICATOR IN TURN

The data are presented in a variety of ways and the comments made about the progress indicators also vary. But some common features are discussed for each:

- National, sub-national and international progress.
- Direction and rate of change.
- Recent and longer term progress.

National and other indicators

The indicators have been chosen to reflect recent progress (primarily over the past 10 years) at the national (or whole-of-Australia) level.

Sub-national data. Although an aspect of life, such as employment, for Australia as a whole may be progressing or regressing, the rate of change - or even its direction - may not be mirrored in every state and territory, or in every industry in Australia. We cannot discuss every difference within Australia for every indicator in this publication. But we do discuss some of the more significant differences and provide signposts to the more detailed and disaggregated data sets underlying the indicators.

Similarly, rates of progress may differ between various subgroups of the Australian population. We do not draw attention to every difference, nor do we systematically compare progress between men and women, between Indigenous and other Australians, or between other groups of people. But the commentary draws attention to differences that are particularly noticeable.

International comparisons. MAP reflects on issues of importance to Australia and Australians, and no systematic or comprehensive attempt has been made to compare Australia's progress with that in other countries. Considering Australian progress side-by-side with progress in other countries can be informative. However, if we were confined to presenting indicators for which comparable overseas data are available, the coverage here would be narrower and its focus would probably be less relevant to Australian concerns. Where possible we draw some international comparisons of headline indicators for those dimensions of progress for which comparable international data are available. A feature article comparing information from member countries of the Organisation for Economic Co-operation and Development (OECD) across a range of areas of progress was published in 2006 ('[Some international comparisons of progress](#)'). [Australian Social Trends](#) (cat. no. 4102.0) publishes spreadsheets that provide an international comparison of several of the indicators discussed in MAP such as life expectancy and unemployment.

Direction and rate of change

Both the direction and rate of change in a progress indicator are important. It is informative to see whether life expectancy is increasing or decreasing, but the rate of increase is also informative, particularly when compared with historical rates.

Just as the rates of progress or regress differ, so do the levels of economic, social or environmental wellbeing attained. We concentrate on progress and hence on change but, when assessing national progress, it is

sometimes informative also to consider levels.

Past, present and future

Each indicator considers progress during the recent past, typically the past ten years. Where possible, though, reference has been made to progress over the longer term. Some indicators move only slowly, and so a longer time horizon is needed to perceive any appreciable change. For other indicators, the longer lasting trends that are of greatest interest are overlaid by cyclical and other short term variation (e.g. the business cycle or regular climatic patterns such as El Niño).

ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLES

MAP is built around indicators that provide a national summary of important areas of progress, presented in ways which can be quickly understood by all Australians. Its focus is Australia-wide, rather than summarising the progress of particular groups of people. However, acknowledging Aboriginal and Torres Strait Islander peoples as Australia's first inhabitants, and recognising the marked and widespread disadvantage that they experience, some supplementary commentary is included: their health, housing, education, and work are discussed within each headline indicator's commentary alongside differences between men and women, young and old, etc. (some of these issues were also examined in the feature article, '[Multiple disadvantage](#)' published in 2004). The commentary does not attempt to summarise general progress for Indigenous Australians. Rather, it contrasts their health, education, etc. with that of Australians generally. For some dimensions of progress, data comparing Indigenous Australians with other Australians, or showing changing levels of Indigenous disadvantage over time are still being developed.

Indigenous Australians' notions of what constitutes progress may differ in some ways from those of other Australians. For some areas of progress, such as family and community, Indigenous views of progress may be of a different nature from the notions of progress that are set out in this publication. Issues relating to cultural and spiritual values, including language and the relationship of Indigenous Australians with the land, are likely to be important. Further development of MAP will benefit from consultation between the ABS and Indigenous peoples about which issues of concern can be reflected in such a statistical summary.

While MAP looks at progress generally, and some aspects of Indigenous disadvantage in particular, the report [Overcoming Indigenous Disadvantage](#), issued by the Steering Committee for the Review of Government Service Provision, contains more detailed statistics on Aboriginal and Torres Strait Islander peoples. This report, like MAP, is built around a statistical framework with headline and supplementary (in this case, strategic change) indicators. It is released regularly to measure progress in overcoming Indigenous disadvantage.

[BACK TO TOP](#)

HOW THE INDICATORS RELATE TO ONE ANOTHER

Each aspect of progress is related, either directly or indirectly, to most of the others. Change in one dimension of progress is typically accompanied by change elsewhere. Therefore it is important to consider the full array of indicators together.

Broadly, we may think of two types of relationship between different areas of progress - trade-offs and reinforcements.

- *Trade-offs* occur when one area of progress improves at the expense of another. In some cases, trade-offs arise after a change of preference: spending on education might be cut, for example, to give more money to health. But they also occur as flow-on effects: for example, as economic activity rises so might greenhouse gas emissions.
- *Reinforcements* occur when one aspect of progress improves and strengthens another. For example, as economic production rises, so might employment.

In reality, the overall effect of a change in any one dimension is much more complex. An intricate system of trade-offs and reinforcements comes into play when any dimension of progress changes. For example, suppose factory output increases. This generates more income, and so there is more money to pay for health care. But increased factory output might also increase air pollution, which is harmful to people's health or might be detrimental to other economic activity such as agriculture.

Although within the indicator commentary we mention some of the more obvious links, we do not mention every relationship, and we hope that readers will bear in mind the many possible links between indicators. A feature article discussing '[Relationships between the dimensions of progress](#)' was published in 2008.

As an illustration, the box below discusses some of the relationships between progress in the health dimension and other headline indicators.

HEALTH AND NATIONAL PROGRESS

Health is linked with many other aspects of progress, and is both influenced by - and influences - them. Here are some of the relationships.

Health and Education and training: a healthy population is better able to take part in education. An educated population provides doctors and nurses to treat the sick, and the scientists to develop new treatments.

Health and Family, community and social cohesion: a society whose members take care of one another will put less strain on the health system and perhaps leave it more available to take care of those most in need. Some experts believe that there are links between levels of social attachment and the incidence of both physical and mental illness.

Health and Crime: being the victim of crime can of course affect one's health, while some crime is committed by those with a drug dependency, itself a health issue.

Health and the Environment: many aspects of environmental progress relate to health. Air pollution - both the quality of the air we breathe and the chemicals that have damaged the ozone layer - may affect health. Salinity and other forms of land degradation affect fresh water quality and availability. Land clearance has been one driver of land degradation. It has also put pressure on native wildlife. Many scientists believe that various cures for diseases lie hidden in the genes of animals and plants. Each time a species becomes extinct, its genetic material is lost.

Health and the Economy: economic activity provides the money (be it private or public) to pay for doctors and

nurses and to build hospitals. But that money is spent at the expense of something else, be it education, law and order or more money for investment that might stimulate economic growth. In turn, a healthy population provides the work force to create economic growth. The changing composition of the economy, as well as the overall level of economic activity, can also affect health: proportionally more people employed in office-based jobs might mean fewer industrial accidents or pollution, but might also create an increase in medical complaints like repetitive strain injury. There might be health implications too if those working behind desks take less exercise than those in more active employment.

Health and Economic hardship and Housing: studies have pointed to the link between economic hardship and poor health. Although some of the links are not fully understood, it seems reasonable to speculate that the poorest members of society may have an inferior diet or accommodation (perhaps they might even be homeless) which will affect their health.

[BACK TO TOP](#)

LOOKING TO THE FUTURE

Australians are, of course, concerned not just with historical progress or with the current condition of the nation, but also with the future. One salient question is 'Will progress in any area lead only to short term gain and perhaps eventual loss, or is the progress sustainable in the longer term?' This is not an easy question to answer.

When trying to paint a statistical picture of the future, one must invoke many more assumptions and exercise much more judgment than when depicting the past. Many styles of forward-looking analysis are not within the ambit of official statistics.

This publication tends not to enter into any direct discussion of sustainability into the future. Even in ecological studies, where the concept of sustainability most commonly arises, agreement has not yet been achieved regarding suitable summary measures of sustainability. Agreed measures are still more distant for such concepts as a sustainable distribution of income.

However, it is natural that people wish to consider the future, and the ABS believes that this publication has a role in facilitating this. One way of looking to the future is to consider whether Australia's stocks of assets (human, natural, produced and financial, and social) are being maintained. Our indicators measure progress in dimensions that relate directly to, or are intimately linked with, Australia's assets.

[BACK TO TOP](#)

This page last updated 30 April 2009

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[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

NATIONAL AND INTERNATIONAL INITIATIVES

There are projects to measure progress and wellbeing at the international, national and sub-national levels. A selection of recent initiatives is mentioned below.

AUSTRALIA

A number of Australian state and territory governments have developed strategic plans that articulate priorities and goals for building a better society. In addition, community indicators are produced in some states to report on the wellbeing of communities. The following describes a selection of this work:

- The chapter of the final report of the 2020 Summit (held in April 2008) entitled [Strengthening communities, supporting families and social inclusion](#) put forward the idea of a National Development Index containing social inclusion indicators - with social, economic and environmental measures - and publishing a government report with the budget each year to measure progress. (See Theme 5: Social inclusion is a first order issue.)
- [A New Direction for New South Wales, the NSW State Plan](#), released in 2006, sets out five areas of activity for the New South Wales Government including Rights, respect and responsibility, Delivering better services, Fairness and opportunity, Growing prosperity across NSW, and Environment for living.
- [Growing Victoria Together](#) is a 10 year strategic plan beginning in 2001 and ending in 2010. It contains goals which balance social, economic and environmental considerations.
- [Community Indicators Victoria](#) has been developed to present and report on the wellbeing of Victorians, using a set of community wellbeing indicators. Reports at the Local Government Area level, containing

data from the 2007 Community Indicators Victoria Survey and other sources, are available on the website.

- [South Australia's Strategic Plan](#), updated in 2008, focuses on six themes including Growing prosperity, Improving wellbeing, Attaining sustainability, Fostering creativity and innovation, Building communities and Expanding opportunity.
- [Tasmania Together](#) is a 20-year strategic plan (from 2001 to 2020) which contains 12 goals for Tasmania's long-term social, economic and environmental future.
- The [Canberra Social Plan](#) sets out seven priorities to guide policy-makers over a 10 to 15 year period (from 2004).
- The [Australian Collaboration](#) (a group of major peak bodies for national non-government organisations) in 2006 produced the report: [Which Direction? A review of monitoring and reporting in Australia](#).

INTERNATIONAL

- The OECD global project [Measuring the progress of societies](#) is built around a series of world forums and seeks to become the world wide reference point for those who wish to measure, or assess, the progress of their societies. The [3rd OECD world forum on statistics, knowledge and policy](#) will focus on 'Charting progress, building visions, improving life' and will be held in Busan, Korea in October 2009.
- The [Canadian Index of Wellbeing](#) is being developed through an innovative process of collaboration involving national leaders, researchers and importantly input from grass roots organisations and Canadian citizens.
- The joint UNECE/OECD/Eurostat [Working Group on Statistics for Sustainable Development](#) presented a report on measuring sustainable development to the Conference of European Statisticians in June 2008. The report articulates a broad conceptual framework for the measurement of sustainable development and identifies a set of core indicators that may allow international comparisons.
- The 'Beyond GDP' international conference was held in Brussels in November 2007. The conference aimed to clarify the indices that are most appropriate to measure progress, and how these can best be integrated into the decision-making process.
- The UK Government launched a Sustainable Development Strategy in March 2005, called "Securing the Future", which sets out the vision of sustainable development to 2020. In 2008, data on the indicators were updated in [Sustainable development indicators in your pocket 2008](#).
- Each year, since 2003, Ireland's [Central Statistics Office](#) produces [Measuring Ireland's Progress](#). This publication provides an analysis of the economic, social and environmental situation in Ireland.
- [Statistics Netherlands](#) has made advances in compiling a System of Economic and Social Accounting Matrices and Extensions (SESAME). This system is an extension to the standard national account framework. For each variable, it permits analysis of both the national total value and its distribution among socioeconomic groups.
- Other useful references are provided on the website of the [International Institute of Sustainable Development](#).

This page last updated 30 April 2009

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[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

Health

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

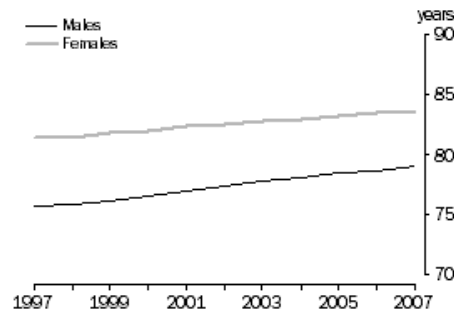
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

HEALTH

Life expectancy at birth



For technical information see [Endnote 1](#).

Source: [Deaths, Australia, 2007](#) (cat. no. 3302.0).

Australian life expectancy at birth improved during the decade 1997 to 2007. A boy born in 2007 could expect to live to be 79, while a girl could expect to reach 84 - increases of three years for both. Women tend to live longer than men, and this is reflected in the differences in life expectancy throughout the 20th century. Although a girl born in 2007 could still expect to live longer than a boy, in recent years life expectancy at birth has increased slightly more quickly for boys than for girls.

While Australians are living longer than ever before and continued improvements in life expectancy are anticipated, there is a good deal of debate about the extent of any further increases. However, there is no

doubt that there is more room for improvement among some groups of the population compared to others. In particular, life expectancy for Indigenous Australians, both male and female, is considerably shorter than that of all Australians ([Endnote 2](#)).

ABOUT THIS INDICATOR

Life expectancy at birth is a measure of how long someone born in a particular year might expect to live if mortality patterns for that year remained unchanged over their lifetime. It is one of the most widely used indicators of population health. It focuses on length of life rather than its quality, but provides a useful summary of the health of the population.

Information on the health status of the Australian population is available from the National Health Survey and other health-related collections regularly conducted by the ABS (See [Themes - Health](#)). Measures that combine mortality, disability and other non-fatal health outcomes have been published by the Australian Institute of Health and Welfare ([Endnote 3](#)).

SEE ALSO

[State and territory spreadsheets](#)

[Health - Measures of Australia's Progress, 2006](#)

[Themes - Demography](#)

[Themes - Health](#)

[The Burden of Disease and Injury in Australia, 2003](#)

ENDNOTES

1. Data are three-year averages, with the year shown being the last year of the three-year period.
2. Australian Bureau of Statistics 2008, [Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005-2007](#), cat. no. 3302.0.55.003, ABS, Canberra; Australian Bureau of Statistics 2008, [Discussion Paper: Assessment of Methods for Developing Life Tables for Aboriginal and Torres Strait Islander Australians, 2006](#), cat. no. 3302.0.55.002, ABS, Canberra.
3. Begg S, Vos T, Barker B, Stevenson C, Stanley L & Lopez A, 2007, [The Burden of Disease and Injury in Australia, 2003](#) AIHW cat. no. PHE 82, Australian Institute of Health and Welfare, Canberra, viewed 30 March 2009.

LINK TO THE [DETAILED SUMMARY](#)

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[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

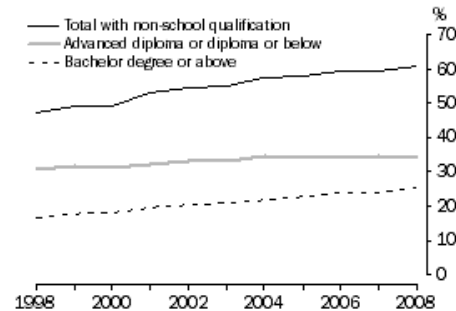
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

EDUCATION AND TRAINING

Level of highest non-school qualification of people aged 25-64 years



For technical information see [Endnote 1](#).

Source: ABS data available on request, [Survey of Education and Work](#).

Between 1998 and 2008, the proportion of 25-64 year olds with a non-school qualification (e.g. university or college education, see [Endnote 1](#)) rose from 47% to 61%, continuing a trend seen for many decades.

The increase in the proportion of people with non-school qualifications is mainly being driven by the substantial increase in the proportion of people with a higher education qualification (e.g. a Bachelor degree

or above). Between 1998 and 2008, the proportion of people aged 25-64 years with a Bachelor degree or higher level qualification increased from 17% to 26%. Over the same period, the proportion of people whose highest qualification was a vocational qualification (e.g. an Advanced diploma or diploma or below) increased from 31% to 34%.

ABOUT THIS INDICATOR

Education and training help people to develop knowledge and skills that may be used to enhance their own living standards and those of the broader community. For an individual, educational attainment is widely seen as a key factor in obtaining a rewarding career. For the nation, having a skilled workforce is vital to support ongoing economic development and improvements in living conditions.

SEE ALSO

[State and territory spreadsheets](#)

[Education and training - Measures of Australia's Progress, 2006](#)

[Themes - Education and Training](#)

[Research Paper: Measuring Human Capital Flows for Australia: A Lifetime Labour Income Approach, 2008](#)

ENDNOTES

1. Data relate to the person's highest non-school qualification only. Some people have more than one qualification. Components do not sum to the total as the total with non-school qualifications includes those where the level could not be determined.

Qualifications are defined as formal certifications, issued by a relevant approved body, in recognition that a person has achieved learning outcomes or competencies relevant to identified individual, professional, industry or community needs. Statements of attainment awarded for partial completion of a course of study at a particular level are excluded.

Non-school qualifications are awarded for educational attainments other than those of pre-primary, primary or secondary education. They include higher education qualifications (e.g. Postgraduate degree, Graduate diploma) and vocational education qualifications (e.g. Certificates I, II, III and IV). Collectively, this group of qualifications is referred to as 'non-school qualifications' instead of 'post-school qualifications' because students can study for vocational qualifications while attending secondary school.

The level of education classification contains several levels of non-school qualifications. For the purposes of this indicator these have been combined into two groups:

- Bachelor degree or above - Postgraduate degree, Master degree, Graduate diploma, Graduate certificate, and Bachelor degree.
- Advanced diploma or diploma or below - Advanced diploma, Associate Degree, Diploma, Advanced certificate, and Certificates I to IV.

LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

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[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

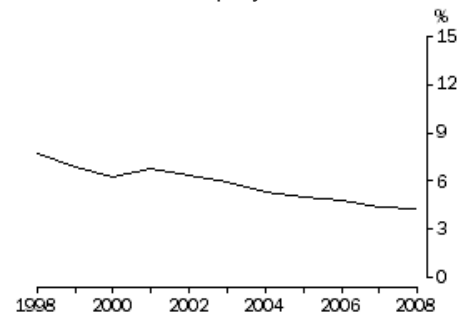
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

WORK

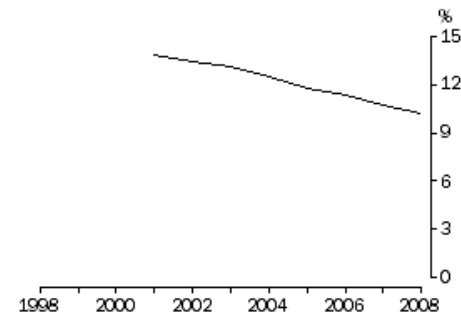
Unemployment rate



For technical information see [Endnote 1](#).

Source: ABS data available on request, [Labour Force Survey](#)

Underutilisation rate



For technical information see [Endnote 2](#).

Source: ABS data available on request, Australian Labour Market Statistics

In 1998, the annual average unemployment rate was 7.7%. Since then it has generally fallen and the annual unemployment rate was 4.2% in 2008. The labour force underutilisation rate fell from 13.9% in 2001 to 10.2% in 2008.

Over the three months to March 2009, the trend series unemployment rate rose by 0.7 percentage points to 5.4% (see [Endnote 1](#)).

ABOUT THE INDICATOR

Paid work is the way most people obtain the economic resources needed for day to day living, for themselves and their dependants, and to meet their longer term financial needs. Having paid work contributes to a person's sense of identity and self-esteem. People's involvement in paid work also contributes to economic growth and development.

The unemployment rate has been chosen as the headline indicator, because of its relevance to the economic and social aspects of work. This rate is the number of unemployed people expressed as a percentage of the labour force, and is a widely used measure of underutilised labour resources in the economy. A second graph shows the labour force underutilisation rate. This is the number of unemployed and underemployed people combined, expressed as a proportion of the labour force (see [Endnote 2](#)). The labour force underutilisation rate gives a broader view of labour underutilisation than the unemployment rate alone.

SEE ALSO

[State and territory spreadsheets](#)

[Work - Measures of Australia's Progress, 2006](#)

[Themes - Labour](#)

ENDNOTES

1. The unemployment rate is the number of unemployed people expressed as a percentage of the labour force (employed plus unemployed people). The annual rates shown are the average of each month's unemployment rates, over the 12 months of the calendar year. Original data (rather than trend or seasonally adjusted data) have been used. Unemployment rates for each month can be obtained from [Labour Force, Australia](#) (cat. no. 6202.0) and the associated electronic release [Labour Force, Australia, Detailed – Electronic Delivery](#) (cat. no. 6291.0.55.001).

2. The labour force underutilisation rate is the number of people who are either unemployed or underemployed (defined below), expressed as a proportion of the labour force. The annual rate used here is the average of the rate for the four quarters in each calendar year (2001 based on 3 quarters of data). Labour force underutilisation rates can be found in the publication [Australia Labour Market Statistics](#) (cat. no. 6105.0) and will be available as a standard labour force product later this year.

People who are unemployed or underemployed are defined as follows:

- Unemployed - people aged 15 years and over who were not employed, and:
 - had actively looked for work at any time in the four weeks up to the end of the reference week and were available for work in the reference week; or

- were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.
- Underemployed - people working part-time (i.e. people who usually work less than 35 hours a week in all jobs) who wanted to work additional hours and were available to work more hours, either in the reference week or in the four weeks subsequent to the survey; and full-time workers who worked less than 35 hours in the reference week, for economic reasons.

LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

Archived content. See [ABS Website](#) for latest information and statistics

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[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

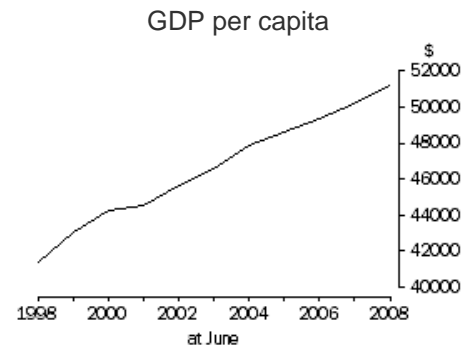
[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

GROSS DOMESTIC PRODUCT



For technical information see [Endnote 1](#).

Source: [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0).

In the 10 years to 2007-08, GDP per person grew from \$41,000 to \$51,000 in real (chain volume) terms, an annual average increase of 2.2%. In the context of the global economic downturn, GDP fell by 0.1% on a trend basis during the last quarter of 2008 ([Endnote 2](#)).

ABOUT THIS INDICATOR

Gross domestic product (GDP) is the total market value of goods and services produced in Australia within a

given period after deducting the cost of goods and services used up in the process of production, but before deducting allowances for the consumption of fixed capital. Unlike the headline measure, [Real net national income](#), GDP does not take account of income flows between Australia and the rest of the world, or of changes in the terms of trade. In addition, national income but not GDP is adjusted for the depreciation of fixed capital used in the production process.

While GDP is not a headline indicator in MAP, it is a key measure for assessing the health of a nation's economy and for comparing economic growth across countries. It is frequently, widely and consistently measured. GDP, however, is not a comprehensive measure of progress and therefore MAP provides a suite of headline and other indicators to examine progress across society and the environment as well as the economy.

SEE ALSO

[National income, Measures of Australia's Progress, 2006 Themes - National Accounts](#)

ENDNOTES

1. GDP per capita is based on a volume measure with a reference year of 2006-07.
2. Australian Bureau of Statistics, 2009, [Australian National Accounts: National Income, Expenditure and Product, Dec 2008](#) (cat no. 5206.0).

LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

Archived content. See [ABS Website](#) for latest information and statistics

[Creative commons](#)

[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

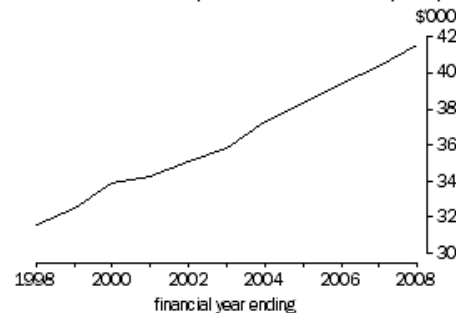
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

NATIONAL INCOME

Real net national disposable income per person



For technical information see [Endnote 1](#).

Source: [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0).

Australia experienced significant real income growth during the past decade. Between 1997-98 and 2007-08, real net national disposable income per person grew by 2.8% a year on average, appreciably faster than during the preceding 20-year period. In the 10 years to 2007-08, GDP per person grew by 2.2% on average. Growth in the terms of trade contributed to the stronger growth in income compared with GDP. Despite the impacts of the global financial downturn on the Australian economy, national income continued to increase in trend terms during the last two quarters of 2008 ([Endnote 2](#)).

ABOUT THIS INDICATOR

National income is a measure of Australia's capacity to acquire goods and services for consumption. It is a determinant of material living standards and is also important for other aspects of progress. There are many different ways of measuring income. The headline measure - real net national disposable income per person - has a variety of features that make it an informative indicator of national progress.

- It is a per person measure. Total income could rise during periods of population growth, even though there may have been no improvement in the average incomes of Australians. This measure excludes the impact of population changes.
- It is a real measure - it is adjusted to remove the effects of price change. Nominal or current price income could rise during periods of inflation, even though there may have been no increase in Australians' real capacity to buy goods and services.
- It takes account of income flows between Australia and overseas, and is adjusted for changes in the relative prices of our exports and imports (our 'terms of trade'). These international influences on Australia's income can increase or decrease Australians' capacity to buy goods and services.
- It is a net measure - it takes account of the depreciation of machinery, buildings and other produced capital used in the production process. Hence, it reflects the income Australia can derive today while keeping intact the fixed capital needed to generate future income.

SEE ALSO

[State and territory spreadsheets](#)

[National income - Measures of Australia's Progress, 2006](#)

[Themes - National Accounts](#)

ENDNOTES

1. Real net national disposable income is based on a volume measure with reference year of 2006-07.
2. Australian Bureau of statistics, 2009, [Australian National Accounts: National Income, Expenditure and Product, Dec 2008](#) (cat. no. 5206.0).

LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

Archived content. See [ABS Website](#) for latest information and statistics

[Creative commons](#)

[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

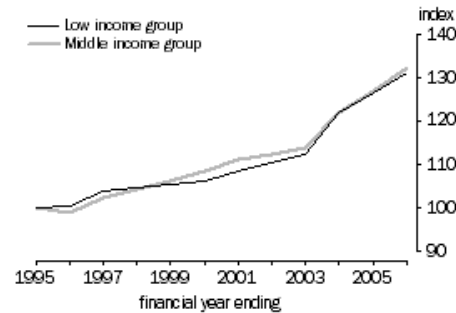
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

ECONOMIC HARDSHIP

Average real equivalised disposable household income



For technical information see [Endnote 1](#).

Source: [Household Income and Income Distribution, Australia, 2005-06](#) (cat. no. 6523.0).

People in the low income group ([Endnote 1](#)) experienced a trend of rising real incomes between 1994-95 and 2005-06. The average real equivalised disposable household income of the low income group is estimated to have risen by 31% over the period, although part of the increase may reflect improvements to the way income was collected in the survey from 2003-04. The same individuals were not necessarily in this income grouping for the entire period. But for those people who were, rising incomes on average would have provided a capacity to improve their standard of living.

While some would interpret this increase in the real income of the low income group as progress, others would consider that it also needs to be weighed against changes in community standards. Although there is no direct measure of these, one approach is to compare changes with those of 'middle' Australians and so changes in the real income of people in the middle income group are also shown. The average real equivalised disposable household income of the middle income group was estimated to have risen by 32% between 1994-95 and 2005-06.

ABOUT THIS INDICATOR

Society generally accepts that people have a right to enjoy some minimum material standard of living, that is, to consume a minimum standard of goods and services. Household income is the major source of economic resources for most households and therefore a key determinant of economic wellbeing. The headline indicator shows the growth in average real equivalised disposable household income of people in the low income group ([Endnote 1](#)). Although it provides no information about the number of people who might have an unacceptable standard of living, it does indicate how the average income of people in the low income group is changing.

The headline indicator considers low income which is commonly associated with economic hardship. However, some people have access to forms of wealth which can be used to support their standard of living (e.g. bank deposits). Furthermore, economic hardship is a multidimensional issue that is often associated with problems such as lack of participation in work, substance abuse, poor health, low levels of education, inadequate housing, crime, social exclusion and a lack of opportunity for children.

SEE ALSO

[State and territory spreadsheets](#)

[Economic hardship - Measures of Australia's Progress, 2006](#)

[Themes - Personal, Family and Household Finances](#)

ENDNOTES

1. No surveys were conducted in 1998-99, 2001-02 or 2004-05. The respective data for these three years shown in the graph for economic hardship are the midpoint values between the survey values of the previous year and the following year. The base of each index is at 1994-95 and equals 100.

Disposable (after income tax) income amounts are equivalised to take account of the different needs of households of different size and composition, as there are economic advantages associated with living with others, because household resources, especially housing, can be shared. The equivalised income amounts are also adjusted for changes in living costs as measured by the Consumer Price Index.

The low income group comprises people in the 2nd and 3rd income deciles from the bottom of the distribution after being ranked, from lowest to highest, by their equivalised disposable household income. The middle income group comprises people in the middle income quintile (5th and 6th deciles) when all people are ranked, from lowest to highest, by their equivalised disposable household income. People falling into the lowest decile are excluded from the low income group because, for many of them, the value of their income does not appear to be an appropriate indicator of the economic resources available to them. Their income tends to be significantly lower than would be available to them if they were reliant on the safety net of income

support provided by social security pensions and allowances. At the same time, their expenditure levels tend to be higher than those of people in the second decile, indicating that they have access to economic resources other than income, such as wealth, to finance their expenditure.

LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

Archived content. See [ABS Website](#) for latest information and statistics

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[Copyright](#)

[Disclaimer](#)

[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

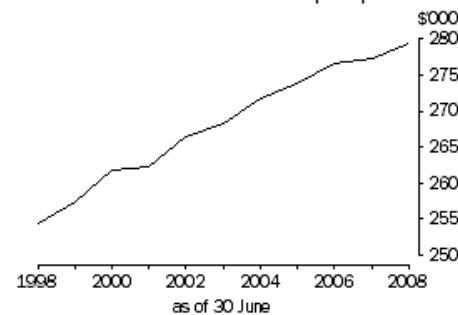
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NATIONAL WEALTH

Real national net worth per person



For technical information see [Endnote 1](#).

Source: [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0);
[Australian Demographic Statistics, June quarter 2008](#) (cat. no. 3101.0).

Between June 1998 and June 2008, Australia's real net worth per person rose at an average annual rate of 0.9%.

ABOUT THIS INDICATOR

National wealth and national income are very closely related. Along with the skills of the work force, a nation's

wealth has a major effect on its capacity to generate income. Produced assets (such as machinery and equipment) are used in income-generating economic activity. Income, in turn, provides for saving to enable the accumulation of new wealth. The headline indicator, 'real national net worth per person' has features that make it an informative indicator of national progress.

- It is a net measure - it shows the amount by which Australia's assets exceed its liabilities to the rest of the world.
- It is a per person measure - total wealth could rise if the population grew, even though there may have been no improvement in Australians' average wealth. This measure excludes the impact of population changes.
- It is a real measure - it is adjusted to remove the effects of price change.

The headline indicator, however, does not take account of everything that might be regarded as valuable. For example, it does not include some aspects of natural capital such as native forests and other natural assets not used for economic production; human capital (e.g. knowledge and skills); or social capital (e.g. social networks and trust).

SEE ALSO

[State and territory spreadsheets](#)

[National wealth - Measures of Australia's Progress, 2006](#)

[Themes - National Accounts](#)

ENDNOTES

1. Real national net worth is based on a volume measure with reference year of 2006-07.

LINK TO THE [DETAILED SUMMARY](#)

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[Staff login](#)

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

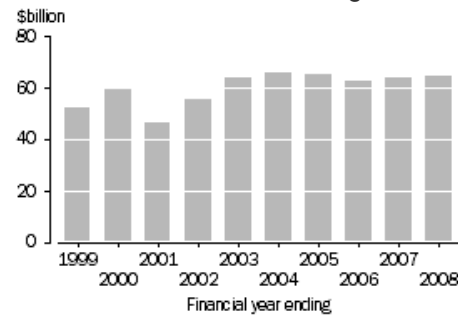
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[Regional Data](#)

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HOUSING

Investment in dwellings



For technical information see [Endnote 1](#).

Source: [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0).

Australians are continuing to invest significantly in the homes that they own. In the ten years to June 2008, around \$603 billion (in real terms) was invested in dwellings (excluding land) with investment exceeding \$60 billion in each year since 2003. The value of land and dwellings owned by the household sector at 30 June 2008 represented 59% of the value of all assets owned by this sector of the economy ([Endnote 2](#)).

The price of established houses in the capital cities rose between June 2002 and June 2008 by an average of about 10% per year. Over this period, prices generally rose from quarter to quarter with the exception of

fluctuations in 2004 and 2005. House prices fell in the second quarter of 2008 and preliminary estimates show these falls continuing for the latter half of 2008 ([Endnote 3](#)).

In 2005-06, while 2.8% of households across Australia required one or more extra bedrooms to accommodate their residents, 78% had one or more bedrooms spare ([Endnote 4](#)). But poor or inadequate housing is a problem for some groups, especially for Aboriginal and Torres Strait Islander peoples living in remote areas ([Endnote 5](#)).

ABOUT THESE INDICATORS

Housing provides people with shelter, security and privacy. Having an adequate and appropriate place to live is fundamental to people's wellbeing, and there are many aspects to housing that affect the quality of people's lives.

At present there is no single headline indicator to measure progress in housing.

Dwelling attributes, such as size, number of bedrooms, physical condition, location relative to amenities and services, and price, are all important. Some of these are presented here and in the main MAP publication (see link below) to provide an indication of whether or not people's many needs and desires for suitable housing are being met.

SEE ALSO

[Housing - Measures of Australia's Progress, 2006](#)
[Themes - Housing](#)

ENDNOTES

1. Investment in dwellings is based on a volume measure with a reference year of 2006-07.
2. Australian Bureau of Statistics 2008, [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0), ABS, Canberra.
- 3 Australian Bureau of Statistics 2008, [House Price Indexes: Eight Capital Cities, December 2008](#) (cat. no. 6416.0), ABS, Canberra.
4. Australian Bureau of Statistics 2008, [Housing Occupancy and Costs, Australia, 2005-06](#) (cat. no. 4130.0.55.001), ABS, Canberra. There is no single standard measure for housing utilisation. However, the Canadian National Occupancy Standard for housing appropriateness can be used as an indicator of potential overcrowding as it is relevant for Australia. It is based on a comparison of the number of bedrooms in a given dwelling and household demographics such as the number of usual residents, their relationship to one another, age and sex. Where the standard cannot be met, households are considered to be overcrowded.
5. Australian Bureau of Statistics 2008, [The Health and Welfare of Australia's Aboriginal and Torres Strait Islander People, 2008](#) (cat. no. 4704.0), ABS, Canberra.

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[Accessibility](#)

[Staff login](#)

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Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

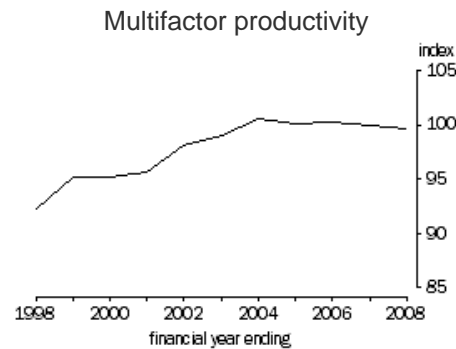
[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

PRODUCTIVITY



For technical information see [Endnote 1](#).

Source: [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0).

During the decade 1997-98 to 2007-08, Australia experienced improved productivity growth, and multifactor productivity rose by 0.8% per year on average ([Endnote 2](#)).

ABOUT THIS INDICATOR

A nation's productivity is the volume of goods and services it produces (its output) for a given volume of inputs (such as labour and capital). A nation that achieves productivity growth produces more goods and services

from its labour, capital, land, energy and other resources. Much, but not all, of Australia's output growth can be accounted for by increases in the inputs to production. The amount by which output growth exceeds input growth is the productivity improvement. Productivity growth can generate higher income and benefits might also accrue in the form of lower consumer prices.

Productivity can be measured in a variety of ways. The most comprehensive Australian measure available at present is multifactor productivity for the market sector. Multifactor productivity represents that part of the growth in output that cannot be explained by growth in labour and capital inputs. Examples of multifactor productivity growth include improved production techniques, better management practices, and organisational change. Technological change, such as increased computing power, is embodied in the asset, and as such is captured in the capital inputs.

SEE ALSO

[Productivity - Measures of Australia's Progress, 2006 Themes - National Accounts](#)

ENDNOTES

1. Reference year for multifactor productivity index is 2006-07.
2. Australian Bureau of Statistics 2007, [Australian System of National Accounts, 2007-08](#) (cat. no. 5204.0), ABS, Canberra.

LINK TO THE [DETAILED SUMMARY](#)

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[Accessibility](#)

[Staff login](#)

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

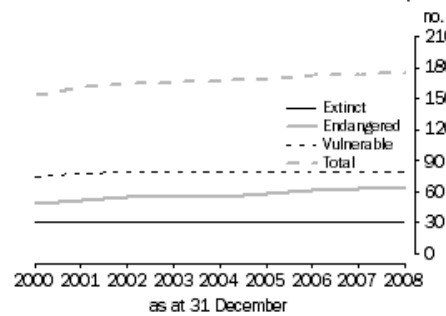
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

BIODIVERSITY

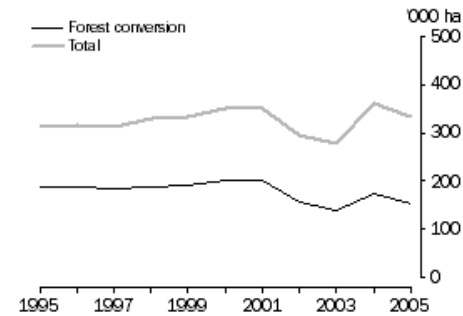
Threatened bird and mammal species



For technical information see [Endnote 1](#).

Source: Australian Government
Department of the Environment, Water, Heritage
and the Arts,
[Species Profile and Threats Database](#).

Annual area of land cleared



For technical information see [Endnote 2](#).

Source: Australian Government Department of
Climate Change 2008, "2006 Activity Land Clearing"
[Activity Query Table](#),
Australian Greenhouse Emissions Information
System.

Between 2000 and 2008, the number of terrestrial bird and mammal species assessed as extinct, endangered or vulnerable rose by 14% from 154 to 175 (of which 69 were birds and 106 were mammals). At 31 December 2008, just under half (46%) of these species were vulnerable, just over one-third (37%) were more seriously

threatened (endangered) and the remainder (18%) were presumed extinct. Between 2000 and 2008, there were increases in the number of both endangered and vulnerable species. The rise in species assessed as endangered was higher (an increase of 33%) than those assessed as vulnerable (an increase of 7%). (For technical information see [Endnote 1.](#))

The estimated 333,600 hectares of Australian land cleared in 2005 was 6% more than the 314,700 hectares cleared in 1995. Of the land cleared in 2005, almost half (152,400 ha) was 'forest conversion' (forest cleared for the first time). This was 18% less than the area converted in 1995 (186,900 ha). The annual area of land cleared declined after 2001 but increased again in 2004.

ABOUT THESE INDICATORS

MAP reports on three dimensions of the natural landscape: biodiversity, land and inland waters.

No single indicator can hope to encapsulate biodiversity, so we focus on two aspects: the numbers of extinct and threatened Australian birds and mammals; and the clearing of native vegetation.

Although the number of birds and mammals is only a small part of overall biological diversity, a decline in these groups of species threatens ecological processes and can point to a wider decline in biodiversity. The list of threatened species is not definitive since species can be added to or removed from the list as their status changes or due to improved knowledge ([Endnote 1](#)).

Land clearing is a key threat to biodiversity. It destroys and degrades the habitat on which native species rely. Clearing also allows weeds and invasive animals to spread, contributes to greenhouse gas emissions and can lead to soil degradation, such as erosion and salinity, which in turn can affect water quality. The land clearing estimates presented in MAP include information about forest conversion (land cleared for the first time) and total land cleared (forest conversion plus reclearing) ([Endnote 2](#)).

SEE ALSO

[State and territory spreadsheets](#)

[The natural landscape: biodiversity - Measures of Australia's Progress, 2006](#)

[Themes - Environment & Energy](#)

[State of the Environment reporting](#)

ENDNOTES

1. Data have been compiled from schedules to the Environment Protection and Biodiversity Conservation Act 1999. Under this Act, there are six different categories of threatened species:

- **Extinct** – there is no reasonable doubt that the last member of the species has died.
- **Extinct in the wild** – the species is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range.
- **Critically endangered** – the species is facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered** – the species is not critically endangered but it is facing a very high risk of extinction in the

wild in the near future.

- **Vulnerable** – the species is not critically endangered or endangered but it is facing a high risk of extinction in the wild in the medium-term future.
- **Conservation dependent** – the species is the focus of a specific conservation program without which the species would become vulnerable, endangered or critically endangered within a period of five years.

In the graph shown, extinct includes extinct and extinct in the wild, and endangered includes critically endangered and endangered. Conservation dependent species are not included in the graph. Migratory species such as seabirds, marine mammals and animals living on islands far offshore are excluded. Subspecies are included.

Extinctions data have been backcast to take account of rediscoveries. There is likely to be a time lag between a species being identified as threatened and being listed. Changes in listings can be the result of taxonomic revisions and improved information from field investigations.

In editions of MAP prior to 2008, the data for this indicator were compiled from schedules to the Endangered Species Protection Act 1992 as well as schedules to the Environment Protection and Biodiversity Conservation Act 1999. As the two Acts are not strictly comparable, only the latter Act has been used to compile data since the 2008 edition of MAP.

For more information, see ['Threatened species and ecological communities in Australia'](#) on the Australian Government Department of the Environment, Water, Heritage and the Arts website.

2. Forest conversion is land that has been cleared for the first time and total land cleared includes forest conversion plus reclearing (clearing of land which has previously been cleared). Reclearing only refers to land areas where a conversion was previously identified. Areas in scope of this indicator are those cleared as a result of deliberate human activities. The figures do not distinguish between the type of vegetation (whether native or non-native) that was cleared.

Data for 2006 have not been included as the area of land cleared was not re-estimated for the 2006 National Greenhouse Gas Inventory. Estimates for 2004 and 2005 should be considered as interim only and will be revised when areas of forest conversion are confirmed in the next update of the National Carbon Accounting System. For further information, see the [National Inventory Report 2006 Vol 2 Part A](#) on the Department of Climate Change website.

LINK TO THE [DETAILED SUMMARY](#)

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[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

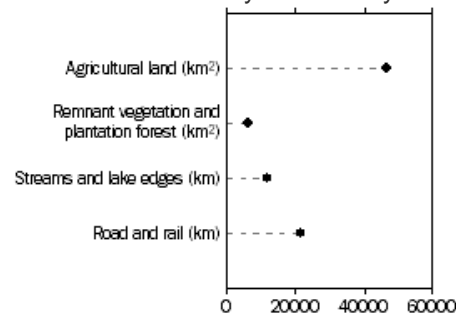
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

LAND

Assets at risk from dryland salinity - 2000



Source: National Land and Water Resources Audit 2001, [Australian Dryland Salinity Assessment 2000](#).

In 2000, about 46,500 square kilometres (4.65 million hectares) of agricultural land had a high salinity hazard or were at high risk from shallow watertables. About 11,800 kilometres of streams and lake edges, as well as 1,600 kilometres of rail and 19,900 kilometres of roads were at risk.

ABOUT THIS INDICATOR

MAP reports on three dimensions of the natural landscape: biodiversity, land and inland waters.

Australia's soils are old and shallow and are susceptible to degradation by agricultural activities. Dryland salinity for example, occurs when trees or other deep-rooted vegetation are replaced with vegetation that use less water. This causes the water table to rise bringing natural salts to the surface. These salts, in sufficient quantity, are toxic to most plants and thus can reduce agricultural productivity. Dryland salinity threatens biodiversity, through loss of habitat on land and in water, and also impacts on water resources. The salt contained in rising groundwater levels can damage bitumen and concrete and so affect roads, footpaths, housing, pipelines and other assets. Areas near water are often worst affected because they occupy the lowest parts of the landscape where saline groundwater first reaches the surface.

The effects of dryland salinity are considered an important measure of environmental progress. However, the salinity data presented above for this headline indicator have not been updated since the first release of MAP in 2002, as there is no more recent data available.

SEE ALSO

[State and territory spreadsheets](#)

[The natural landscape: land - Measures of Australia's Progress, 2006](#)

[Themes - Environment & Energy](#)

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LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

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[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

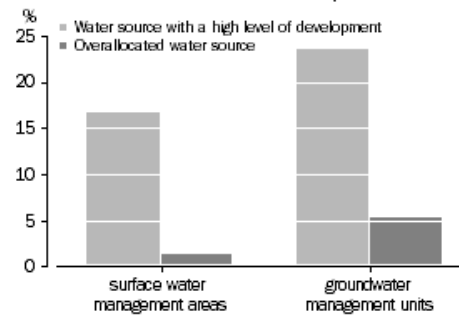
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

INLAND WATERS

Water resources level of development - 2004-05



For technical information see [Endnote 1](#).

Source: National Water Commission, [Australian Water Resources 2005](#).

In the year ending June 2005, 1% of the 256 Australian surface water management areas that were assessed were overallocated. A further 17% of these areas were developed to a high level. About 5% of the 356 groundwater management units that were assessed were overallocated and another 24% had a high level of development.

ABOUT THIS INDICATOR

MAP reports on three dimensions of the natural landscape: biodiversity, land and inland waters.

Water is fundamental to the survival of people and other organisms. Apart from drinking water, much of our economy (agriculture in particular) relies on water. The condition of freshwater ecosystems has a critical impact on the wider environment.

SEE ALSO

[State and territory spreadsheets](#)

[The natural landscape: inland waters - Measures of Australia's Progress, 2006](#)

[Themes - Environment & Energy](#)

[State of the Environment reporting](#)

ENDNOTES

1. Australia has 340 surface water management areas and 367 groundwater management units (hydraulically connected groundwater systems). However some of these areas and units were not assessed or did not have data available in 2004-05 and these have been excluded from the calculations.

A water source with a high level of development is one where the sum of water access entitlements is between 70% and 100% of sustainable yield. An overallocated water source is one where the sum of water access entitlements is more than 100% of sustainable yield. In this context, 'sustainable yield' is the 'level of water extraction from a particular system that, if exceeded, would compromise key environmental assets, or ecosystem functions and the productive base of the resource'. There is no standardised method across Australia for the determination of the sustainable yield.

LINK TO THE [DETAILED SUMMARY](#)

This page last updated 1 May 2009

Archived content. See [ABS Website](#) for latest information and statistics

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[Privacy](#)

[Accessibility](#)

[Staff login](#)

ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

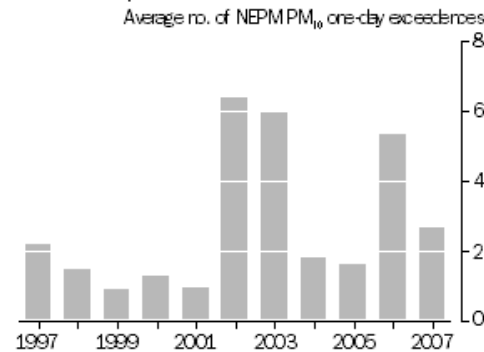
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

AIR QUALITY

Days on which fine particle health standards were exceeded



For technical information see [Endnote 1](#).

Source: State environmental protection agencies, 2008 ([Endnote 2](#));

[Regional Population Growth, Australia](#) (cat. no. 3218.0).

Overall, air quality in Australia is relatively good. Fine particle health standards ([Endnote 1](#)) were exceeded in the selected urban areas on average between one and three days each year between 1997 and 2007 with the exception of 2002, 2003 and 2006. In 2002 and 2003, standards were exceeded more often, mainly because of severe bushfires and dust storms around the Sydney and Melbourne areas, which caused the National Environment Protection Measure (NEPM) for fine particle (PM₁₀) concentrations in the air to be exceeded on

13 days in Sydney (Liverpool) in 2002 and 10 days in Melbourne (Footscray) in 2003. This NEPM standard was also exceeded on eight days in Brisbane (Rocklea) in 2002. In 2006 it was exceeded on 11 days in Adelaide (Netley), mostly due to smoke haze from bushfires and strong winds and windblown dust. The standards were also exceeded on 11 days in Melbourne in 2006, with fire the likely cause for 10 of those days.

ABOUT THE INDICATOR

MAP reports on two dimensions of the air and atmosphere: urban air quality and greenhouse gas emissions.

Poor air quality has a range of negative impacts: it can cause health problems, damage infrastructure, reduce crop yields and harm flora and fauna. Air pollution occurs both naturally and as a result of human activities. Australians consistently rank air pollution as a major environmental concern. The concentration of fine particles in the atmosphere is the form of air pollution about which many health experts in Australia are most concerned.

The headline indicator summarises data from continuous air monitoring stations in Sydney, Melbourne, Adelaide, Perth and Brisbane to report on the number of days when the National Environment Protection Measure (NEPM) for fine particle (PM₁₀) concentrations in the air was exceeded ([Endnote 1](#)). It is important to note that daily changes in the measurement of air quality depend both on ambient conditions, like wind direction, and the monitoring station's proximity to pollution sources. Further, high concentrations of fine particles from irregular events, such as bushfires, can obscure the longer trend in levels produced by regular sources like car emissions. In general, the common air pollutants are found at higher levels in urban and industrial areas than in rural Australia.

SEE ALSO

[The air and atmosphere: air quality - Measures of Australia's Progress, 2006](#)
[Themes - Environment & Energy](#)
[State of the Environment reporting](#)

ENDNOTES

1. Fine particles in the atmosphere come from a wide variety of sources, including soil (dust), vegetation (pollens and fungi), sea salt, fossil fuel combustion, biomass burning (including bushfires) and industry. Particles suspended in air have the ability to penetrate the lower airways of the lung if smaller than 10 micrometres in diameter (referred to as PM₁₀). Increasing evidence suggests the acute health effects may, in fact, be the result of exposure to very fine particles, such as those smaller than 2.5 micrometres in diameter (referred to as PM_{2.5}). It is these finer particles that are the main cause of urban haze, which typically appears white. Most of these particles are generated by people, rather than occurring naturally. The human health effects are many and depend on the size and chemical composition of the particles. Particles can aggravate existing respiratory and cardiovascular disease and asthma, can affect eyesight and cause allergies.

Data are from representative sites in Sydney (Liverpool), Melbourne (Footscray), Brisbane (Rocklea), Perth (Duncraig) and Adelaide (Thebarton from 1997 to 2002 and Netley for 2003 to 2007), and have been

averaged in proportion to each city's population. The data are the number of days when the National Environment Protection Measures (NEPM) average daily PM₁₀ standard is exceeded. The NEPM standard is a maximum concentration of 50 micrograms per cubic metre with a maximum allowable exceedence of five days per year. The PM₁₀ data from each state environmental protection agency (EPA) was obtained using the Tapered Element Oscillation Microbalance method, which continuously monitors PM₁₀ levels in the air averaged over a 24 hour period. 1997 was the first year all of the five EPAs used this method. Compliance with the standards can only be demonstrated if data capture is at least 75% in each quarter of the year. Data capture did not meet the target for Footscray in 2006 as this monitoring station did not operate continuously during the year. It was taken off-line for upgrading.

2. Australian Bureau of Statistics 2008, [Regional Population Growth, Australia](#), 2006-07, cat. no. 3218.0, ABS, Canberra.

Department of Environment and Climate Change (NSW) 2008, [Search air quality data](#), Department of Environment and Climate Change (NSW), Sydney, viewed 20 January 2009.

Department of Environment and Conservation (WA) 2008, [Air Quality Tools, Systems and Data](#), Department of Environment and Conservation (WA), Perth, viewed 20 January 2009.

Environmental Protection Agency South Australia 2008, [South Australia's Air Quality 2007](#), Environmental Protection Agency South Australia, Adelaide, viewed 20 January 2009.

Environmental Protection Agency Victoria 2008, [Air Monitoring Report 2007: Compliance with the National Environment Protection \(ambient air quality\) measure](#), Environmental Protection Agency Victoria, Melbourne, viewed 20 January 2009.

Queensland Government Environmental Protection Agency 2008, [Queensland 2007 Air Monitoring Report](#), Queensland Government Environmental Protection Agency, Brisbane, viewed 20 January 2009.

LINK TO THE [DETAILED SUMMARY](#)

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[Accessibility](#)

[Staff login](#)

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

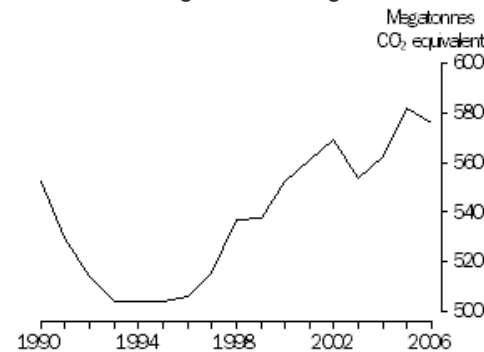
[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

ATMOSPHERE

Australia's net greenhouse gas emissions



For technical information see [Endnote 1](#).

Source: Australian Greenhouse Office 2008, [National Greenhouse Gas Inventory 2006](#).

For 2006, Australia's net greenhouse gas emissions were estimated to be 576.0 megatonnes of carbon dioxide-equivalent (CO₂-e) ([Endnote 1](#)). Australia's net emissions in 2006 were 1% lower than in 2005, and 4.2% above 1990 levels (the year 1990 is the base period for the reporting of emissions under the Kyoto protocol). Emissions tended to rise gradually over the period from 1995. The sharpest rise was between 1997 and 1998 when emissions from land use change rose rather than fell, with another steep rise between 2004 and 2005. The energy sector is the largest source of greenhouse gas emissions. Emissions from this sector

rose steadily from 1990 to 2006 ([Endnote 2](#)).

ABOUT THE INDICATOR

MAP reports on two dimensions of the air and atmosphere: urban air quality and greenhouse gas emissions.

Climate change is widely perceived as one of the most significant international environmental concerns. The main gases in the atmosphere, nitrogen and oxygen, are almost completely transparent to the sun's rays. But water vapour, carbon dioxide and other gases form a blanket around the Earth, trapping heat - a process called the greenhouse effect. Human activity is increasing atmospheric concentrations of existing greenhouse gases (such as carbon dioxide and methane) and adding new gases such as chlorofluorocarbons (CFCs).

Net emissions of greenhouse gases are estimated using information about total emissions, less any credits from forest sinks. These credits are estimates of how much carbon dioxide has been absorbed by new and expanding forests established in Australia since 1990.

SEE ALSO

[State and territory spreadsheets](#)

[The air and atmosphere: atmosphere - Measures of Australia's Progress, 2006](#)

[Topics @ a Glance - Environment & Energy](#)

[Carbon Pollution Reduction Scheme, White Paper, 2008](#)

[State of the Environment reporting](#)

ENDNOTES

1. The indicator measures million tonnes (megatonnes) of carbon dioxide (CO₂) equivalent emissions.

Different greenhouse gases have different effects and remain in the atmosphere for different periods of time. A tonne of methane, for example, contributes as much to global warming as 21 tonnes of CO₂. To assess the impact of the different gases together, emissions of each gas are converted to a common CO₂ equivalent scale and added. For example, one tonne of methane plus one tonne of CO₂ would equate to 22 tonnes of greenhouse gases CO₂ equivalent.

Estimates for forest conversion, a component of overall greenhouse gas emissions, should be considered as interim only for 2004 and 2005, and will be revised when areas of forest conversion are confirmed in the next update of the National Greenhouse Gas Inventory 2007. In particular, the forest conversion component was not re-estimated for 2006 and, as an interim measure only, was assumed to be unchanged from the 2005 estimate. For further information, see the [National Inventory Report 2006 Vol 2 Part A](#) on the Department of Climate Change website.

The data are based on estimates produced using Kyoto accounting methods.

2. Australian Government Department of Climate Change 2008, [National Greenhouse Gas Inventory 2006](#), Australian Greenhouse Office, Canberra, viewed 1 August 2008.

Australian Government Department of Climate Change 2008, [National Inventory Report 2006 Vol 2 Part A](#), Australian Greenhouse Office, Canberra, viewed 22 July 2007.

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

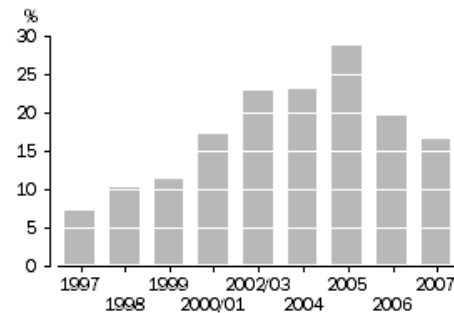
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[Regional Data](#)

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OCEANS AND ESTUARIES

Proportion of fish stocks assessed as overfished and/or subject to overfishing



For technical information see [Endnote 1](#).

Source: [Larcombe, J. and Begg, G. \(eds\), 2008](#)

[Fishery Status Reports 2007: Status of Fish Stocks Managed by the Australian Government](#),

Bureau of Rural Sciences

In 2007, for fish stocks in fisheries managed by the Australian Government, 16 of the 96 principal species assessed (17%) were overfished and/or subject to overfishing. This compares with 4 of the 55 species assessed (7%) in 1997 and 24 of the 83 species assessed (29%) in 2005 (see [Endnote 1](#)). Commonwealth-managed fisheries account for about 30% of all Australian fisheries by production volume.

In 2002 (the most recent data available) the National Land and Water Resources Audit assessed the condition

of about 1,000 estuaries and found that 50% were near-pristine, 22% were largely unmodified, 19% had been modified and 9% had been extensively modified ([Endnote 2](#)).

ABOUT THESE INDICATORS

Australia's coastal and marine regions support a large range of species, many of them found only in Australian waters. These regions are also important to Australian society and the economy.

At present, this dimension has no single headline indicator, but it does have important aspects which different organisations have attempted to measure.

One such aspect is the sustainability of fish stocks. Australia's major fisheries target prized species such as lobsters, prawns, abalone and tuna, which, despite modest production tonnage in world terms, are subject to high fishing pressure. Overfishing occurs when the fishing pressure is too heavy to allow the fish population to replenish itself, or when too many small fish are taken, and therefore too few grow to a size that provides the largest yield for that fishery. Overfished species are those for which the current stock is below a reference point set by scientists and managers.

Measuring the condition of estuaries not only reports on the state of our oceans, it also sheds light on how land use in the estuary catchment is affecting the sea. The Estuarine Condition Index, developed by the National Land and Water Resources Audit, provides a snapshot of estuary health. The more modified an estuary, the greater the pressures on it.

SEE ALSO

[Oceans and estuaries - Measures of Australia's Progress, 2006](#)
[Themes - Environment & Energy](#)
[State of the Environment reporting](#)

ENDNOTES

1. The number of fish stocks (that is, species or groups of species) examined each year has generally increased over time although occasionally a stock may be removed from assessment. For further information see [Fishery Status Reports 2007: Status of Fish Stocks Managed by the Australian Government](#) from the Bureau of Rural Sciences.

2. National Land and Water Resources Audit 2002, [Catchment, River and Estuary Condition in Australia](#), NLWRA, Canberra.

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[Accessibility](#)

[Staff login](#)

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

Family, community and social cohesion

[Full Contents](#)

[About MAP](#)

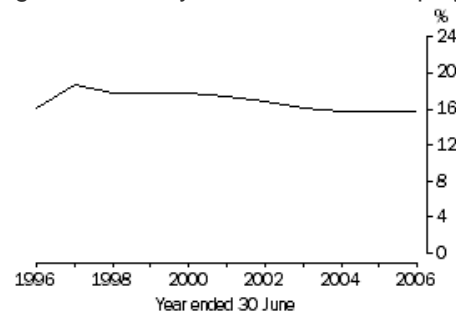
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[Regional Data](#)

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FAMILY, COMMUNITY AND SOCIAL COHESION

Children aged under 15 years without an employed parent



For technical information see [Endnote 1](#).

Source: ABS data available on request, [Surveys of Income and Housing](#)

Since the mid-1990s, the proportion of children aged under 15 years living without an employed parent in the same household has varied between 15% to 19%, and has been 16% or less since 2002-03. In 2005-06, 607,000 children lived without an employed co-resident parent and around 69% of these lived in one-parent families ([Endnote 1](#)).

Between 2000 and 2006, the proportion of people aged 18 years and over who reported that they did some voluntary work during the previous 12 months increased from 32% to 35% ([Endnote 2](#)). While the volunteer rate increased, the amount of time volunteers gave decreased. The median annual hours contributed by

volunteers fell from 72 hours per person in 2000 to 56 hours per person in 2006.

ABOUT THESE INDICATORS

Family and community are important aspects of society, but the way in which they contribute to progress is difficult to define and measure, and so there is no single indicator that captures all that might be important. The effective functioning of families and communities depends on a wide range of factors. For example, the quality and strength of people's relationships and bonds with others - their family, friends and the wider community - are important elements which contribute to social cohesion. A more cohesive society is one in which communities are strong and inclusive, in which inequalities are reduced and people have a sense of belonging. The decline or absence of support from people's families and communities can contribute to a range of social problems such as poverty, illiteracy, ill-health and social exclusion.

While there is no single headline indicator to measure progress in this dimension, two aspects of family and community life are presented.

Children living in a household without a co-resident employed parent may be at greater risk of experiencing financial hardship, and lack of employment within the family may also impact on children's long-term personal development. It is important to note however that children living without a co-resident employed parent do not always experience adverse outcomes ([Endnote 3](#)).

The vast range of services provided within communities by groups, clubs and charitable organisations are a crucial adjunct to the care provided by families and the more formal types of support provided by governments. Community bonds can be strengthened through volunteering and donating money to groups and organisations in the community. Giving time to do some work for an organisation or group might be regarded as one of the stronger expressions of social capital, as it involves giving help and provides opportunities for community engagement.

SEE ALSO

[Family, community and social cohesion - Measures of Australia's Progress, 2006](#)

[Themes - Family and Community Statistics](#)

[Strengthening communities, supporting families and social inclusion - Final report of the 2020 Summit, April 2008](#)

ENDNOTES

1. Children aged under 15 years living in families where no resident parent is employed - of all children under 15 years. No survey was conducted in 1998-99 and 2001-02 and 2004-05.

2. Australian Bureau of Statistics 2007, [Voluntary Work, Australia, 2006](#), cat. no. 4441.0, ABS, Canberra.

As a result of improvements to the survey, estimates of volunteering for 2006 place a greater emphasis on work 'voluntarily undertaken' than previously. The standard estimate of 34% excludes for example community work undertaken as part of work for the dole, a student placement or a community service order. The estimate of 35% presented above does not make these adjustments and is consistent with data from 2000. For more

detailed information, see comparison table A2 and the discussion in the appendix in the publication. Note also that these estimates are from the 2006 General Social Survey which was designed to provide a detailed account of volunteers and their volunteering activities. As such its results will be different (and more accurate) than those available from other sources including the 2006 Census of Population and Housing. The census data is useful, however, for comparing the characteristics of volunteers at the small area level.

3. See for example: Dawkins, P, Gregg, P, & Scutella, R 2001, [The Growth of Jobless Households in Australia](#), Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Melbourne, viewed 4 March 2007; and Gregory, R 1999, [Children and the Changing Labour Market: Joblessness in Families with Dependent Children](#), Discussion Paper No. 406, Centre for Economic Policy Research, Australian National University, Canberra, viewed 5 March 2007.

LINK TO THE [DETAILED SUMMARY](#)

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Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

[Feature Articles](#)

[Regional Data](#)

[Rate this page](#)

CRIME

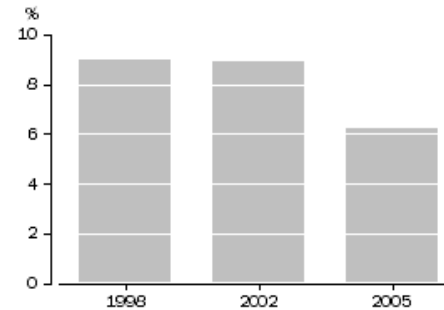
Victims of selected personal crimes



For technical information see [Endnote 1](#).

Source: [Crime and Safety, Australia, 2005](#)
(cat. no. 4509.0).

Victims of selected household crimes



For technical information see [Endnote 2](#).

Source: [Crime and Safety, Australia, 2005](#)
(cat. no. 4509.0).

Though small, the victimisation prevalence rates for selected personal crimes showed an increase between 1998 and 2005 from 4.8% to 5.3%, the same level as in 2002. Most of these people were assaulted. Between 1998 and 2005, the proportion of households that were victims of selected household crimes fell from 9.0% to 6.2%.

ABOUT THESE INDICATORS

Crime takes many forms and can have a major impact on the wellbeing of victims, their families and friends, and the wider community. Those most directly affected may suffer financially, physically, psychologically and emotionally, while the fear of crime can affect people and restrict their lives in many ways. There are other costs as well, including the provision of law enforcement services by the police, courts and associated legal services, and corrective services.

Although it would be desirable to have a single indicator of the cost of crime to society, one does not exist. Instead the headline indicators are two measures of victims of common criminal offences: 'selected personal crimes' and 'selected household crimes'. The former refers to assault, sexual assault or robbery. The latter refers to actual or attempted break-in and motor vehicle theft. Personal crimes are not restricted to crimes committed in the victim's home, and so include crimes at people's place of work or study and so on. The victimisation rates for selected personal crimes are for assault and robbery victims among people aged 15 or over, and sexual assault among people aged 18 and over ([Endnote 1](#)). The victimisation rates for selected household crimes are for actual or attempted break-ins and motor vehicle thefts across all households.

SEE ALSO

[State and territory spreadsheets](#)

[Crime - Measures of Australia's Progress, 2006](#)

[Themes - National Centre for Crime and Justice Statistics](#)

ENDNOTES

1. The victimisation rates for personal crimes are for assault and robbery victims among people aged 15 and over, and sexual assault among people aged 18 and over. Completion of the sexual assault questions for the ABS Crime and Safety Survey was voluntary, and some respondents chose not to complete them. For these respondents selected data items were imputed following a standard set of rules based on the assumption that the victimisation rates were equal for respondents and non-respondents alike within age groups and sex categories.

2. The victimisation rates for household crimes are for actual or attempted break-ins and motor vehicle thefts across all households (private dwellings).

LINK TO THE [DETAILED SUMMARY](#)

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ABS logo



Statistics

Census

Participating in a survey

About

> [By Catalogue Number](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2009

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/04/2009

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[Home page](#)

[Summary](#)

[Health](#)

[Atmosphere](#)

[Family, community and social cohesion](#)

[Full Contents](#)

[About MAP](#)

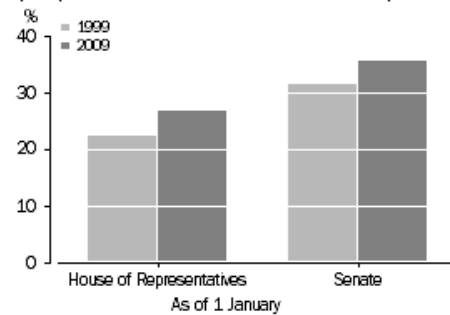
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[Regional Data](#)

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DEMOCRACY, GOVERNANCE AND CITIZENSHIP

The proportion of women in federal parliament



Source: [Parliamentary Handbook of the Commonwealth of Australia](#).

The proportion of women in the Parliament of Australia has risen over the past 10 years. On 1 January 1999, 33 of 148 (22%) members of the House of Representatives were women, as were 24 of 76 (32%) senators. By the beginning of 2009, the representation of women had risen to 40 of 150 (27%) in the House of Representatives and 27 of 76 (36%) in the Senate. The rise in the proportion of women in parliament between 1999 and 2009 was relatively small compared to the increase that had taken place in the decade prior ([Endnote 1](#)).

At 30 June 2008, 92% of eligible Australians were enrolled to vote, the same proportion as at the time of the

Federal elections in 2007 and in 2004. There are differences in the proportions enrolled among different age groups. The lowest proportion is for younger people aged 18-24 years where 82% were enrolled at 30 June 2008 ([Endnote 2](#)).

ABOUT THESE INDICATORS

National life is influenced by both the wellbeing of individual citizens in terms of tangible factors such as income, wealth, health and education and by less tangible factors such as the quality of our public life, the fairness of our society, the health of democracy and the extent to which citizens of Australia participate actively in their communities or cooperate with one another.

While these areas are important to the functioning of society, it is difficult to measure these aspects, and there is no single indicator that summarises this dimension of progress.

It has been argued that a healthy democracy needs citizens who care, are willing to take part, and are capable of helping to shape the shared values and aspirations of a society. Participation - whether through the institutions of civil society, political parties, or the act of voting - is therefore seen as important to a stable democracy. In Australia, enrolment and voting in state/territory and Federal elections is compulsory.

Another principle underpinning a healthy democracy is that parliament should represent and express the will of the people. The representation of women in parliament is an indicator of women's political participation and the support for female candidates from political parties.

SEE ALSO

[Democracy, governance and citizenship - Measures of Australia's Progress, 2006](#)
[The Australian Constitution](#)
[Australian Human Rights Commission](#)

ENDNOTES

1. Information on women in parliament can be found in the [Parliamentary Handbook of the Commonwealth of Australia](#) on the Parliament of Australia website, viewed 20 January, 2009.
2. These estimates were derived using Australian Bureau of Statistics population data and are sourced from Australian Electoral Commission (AEC) 2008, [AEC Annual Report 2007-08](#), viewed 10 December 2008.

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Census

Participating in a survey

About

> [By Release Date](#)

1383.0.55.001 - Measures of Australia's Progress: Summary Indicators, 2008 (Edition 2)

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 30/09/2008

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: [Print Page](#) [Print All](#)

[Contents](#)

[In this issue](#)

[Progress in Australia: The
Headline Dimensions](#)

[The Headline Dimensions:
Individuals](#)

[The Headline Dimensions: The
Economy and Economic
Resources](#)

[The Headline Dimensions: The
Environment](#)

[The Headline Dimensions:
Living Together](#)

[About this Release](#)

Relationships Between
Domains of Progress (Feature
Article)



RELATIONSHIPS BETWEEN DOMAINS OF PROGRESS

INTRODUCTION

The idea that there are interactions between society, economy and the environment (the three broad domains of progress presented in **Measures of Australia's Progress**) has been around for some time. A change in one aspect of life is almost always associated with changes in others. Any assessment of whether life in Australia is improving will depend on the priority assigned to each domain of progress and will also be influenced by consideration of the many possible links between domains. Some of these links are well understood, while others are more complex and less obvious. The increasing focus on the need to measure all aspects of progress, not just economic, has made it important also to articulate relationships between the three broad domains: the economy, society and the environment.

While we consider the three domains separately in order to provide a way to organise the indicators presented in **Measures of Australia's Progress (MAP)**, in reality the environment, economy and society cannot be separated. The three domains used in choosing the measures comprise one system. Although some concerns can, for the convenience of discussion, be attached loosely to the economy, the society or the environment, they are all of importance to other domains - education and training, and work, for example, are of both social and economic importance; air quality is of economic, social and environmental importance.

Drawing on MAP headline indicators and other information, this article provides an overview of some of the key relationships between the three domains. As the intent is to be illustrative, the article does not attempt to cover all relationships that exist, or bring together all the data which may be relevant to exploring these relationships. Many of the examples included in the article are very simple and well-known relationships.

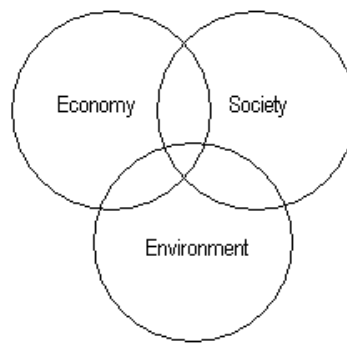
When considering indicators of progress, the question of sustainability is often raised. There are two different notions of sustainability: 'weak' and 'strong' sustainability. Weak sustainability only requires the total stock of economic, human, social and natural capital to be maintained. Therefore, forms of capital can be traded off against each other. It allows for the depletion or degradation of natural resources, as long as such depletion is offset by increases in the stocks of other forms of capital. Strong sustainability requires the levels of all types of capital - economic, human, social and natural - to be kept above a certain level (see [endnote 1](#)).

MAP was developed to help people determine whether or not life in Australia is improving. MAP does not make forecasts or enter into any direct discussions of sustainability, however this concept remains an underlying consideration when reporting on progress and as such is a recurring theme throughout this article.

A FRAMEWORK FOR RELATIONSHIPS BETWEEN THE DOMAINS OF PROGRESS

The framework below illustrates the inter-relationships between society, the economy and the environment, showing that the three domains comprise one system. The relationships between these domains flow in both directions, and some relationships flow between all three domains. For example, people may highly value preservation of the natural environment. The environmental concerns of consumers affect the economy and society. The way the economy responds to this consumer demand in turn affects the environment. While there are many examples of relationships flowing between all three broad domains of progress, this article focuses separately on relationships between the economy and the environment, the economy and society, and the environment and society.

Framework: inter-relationships between society, economy and environment



There are two broad types of relationships between the domains of progress: trade-offs and reinforcements. Trade-offs occur when one domain of progress improves at the expense of another, either as a result of a deliberate choice or as an unforeseen consequence. As economic activity rises so might greenhouse gas emissions. Reinforcements occur when one aspect of progress improves and strengthens another. For example, as economic production rises, employment may rise too.

As well as the interactions between the domains of progress, there are also relationships within domains. Within the environment domain, for example, clearing native forest may adversely affect biodiversity by removing the food and habitat on which some native species rely and will also impact on net greenhouse gas emissions through the removal of forest sinks. While these relationships are important for an assessment of progress, the focus of this article is on relationships between domains of progress, rather than within them.

RELATIONSHIPS BETWEEN SOCIETY AND THE ECONOMY

A healthy economy is often considered to be a key element of a healthy society. As production and incomes in the economy rise, material living standards may improve, reinforcing the social domain. This reinforcement may in turn lead to a further strengthening of the economy, when a healthier and more educated population contributes to increased productivity. The interaction of a number of factors contributes to economic growth, including rising population, increasing inputs such as labour (hours worked and number of people working) and capital, labour productivity growth and technological progress. Not all of the relationships are positive - a strong economy can lead to some trade-offs. Some of the key interactions between society and the economy are described below.

People generate demand

People generate demand for goods and services. Changes in demand can affect economic activity across industries over time, benefiting those industries which produce goods or services for which there is high demand and potentially leading to a change in the skill mix of labour required.

One of the indicators used to expand upon the national income dimension of MAP is real household final consumption per person. This indicator provides a household sector perspective of economic activity.

Household final consumption is the 'using up' of goods and services, by people and non-profit institutions serving households, to satisfy needs and wants. It excludes intermediate consumption expenditure (the use of goods and services in the production of other goods and services) and expenditure on fixed assets such as dwellings.

Real household final consumption per person grew by 2.7% per year on average between 1996-97 and 2006-07. Household expenditure on communication showed particularly strong growth (an average increase of 6.8% per year, per person, after adjusting for inflation). Spending on goods for recreation and culture (e.g. televisions, mobile phones, cameras) also grew strongly.

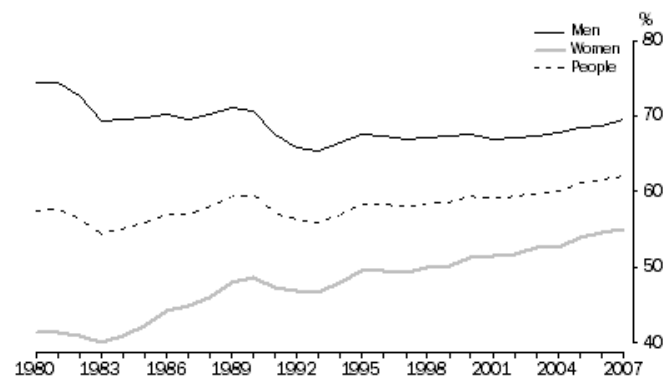
Changes in demand in turn affect people

Shifts in consumer demand can lead to changes in production and therefore changes to industry of employment. In addition, changes in processes and products within industries, often due to changed technology, lead to a shift in the type of jobs that employers offer. Such changes can have a positive effect for the economy but can affect society when they lead to the loss of certain types of jobs (for example if manual jobs, once done by labourers, can be automated). The individual impact of this may be good (providing opportunities to learn different skills) or bad (leading to redundancy for those who aren't able to gain the necessary skills). In turn, changes in the skills needed by employees help to shape education and training programs.

Labour supply and participation

People generate demand for goods and services, but they are also vital in meeting this demand. The larger the size of the labour force, the greater the number of people who are available to work and actively contribute to economic activity, facilitating higher levels of production. While the labour force may increase simply as a result of overall population growth, it may also grow because of increased labour force participation by certain groups within the population. The number of women working (as a proportion of all civilian women aged 15 years and over), an indicator used to help assess the work dimension of progress in MAP, has increased over time while the proportion of men working has declined. While there have been some fluctuations over the period, the net effect of these changes has been an increase in the proportion of people aged 15 years and over in employment, from 58% in 1980 to 62% in 2007. The age of the population also has impacts for labour force participation (and therefore economic growth), since nearly all Australians retire from work by age 65 years and some retire considerably younger.

Proportion of people(a) working



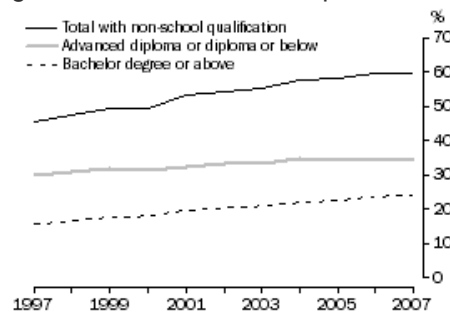
(a) Civilian population aged 15 years and over.

Source: [Labour Force, Australia, detailed electronic delivery](#) (cat. no. 6291.0.55.001), datacube LM8.

Human capital and productivity

Other societal factors also affect labour and therefore the economy. Key elements of human capital, along with hours worked, have the potential to enhance both productivity and participation in the labour force, thus strengthening the economy, illustrating a reinforcement relationship. The skills of the labour force, which may be enhanced by investment in people's education and training, can provide a more efficient/effective labour input to production, contributing to productivity. The headline indicator for education and training used in MAP is shown in the graph below. The proportion of 25-64 year olds with a non-school qualification has increased over the decade, from 46% in 1997 to 59% in 2007.

Education and training, Highest level of non-school qualification of people aged 25-64 years



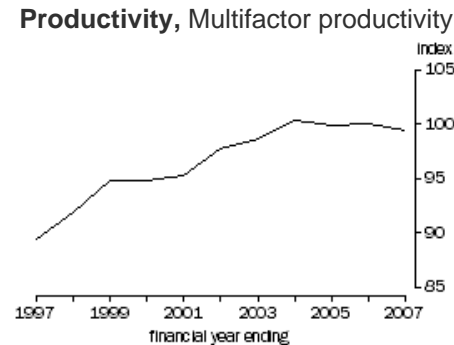
(a) People can hold multiple qualifications, however only data for the highest non-school qualification are collected and presented.

Source: ABS data available on request, Survey of Education and Work.

Improved health also has the potential to allow more people to participate in the labour force, to help people perform better when at work, reduce the number of days people are absent from work and to allow people to remain in the workforce for longer. The Productivity Commission has estimated that enhancement of workforce participation and productivity through the stream of the National Reform Agenda that is directed at health promotion and disease prevention could potentially result in increases in GDP of around 6% after 25 or

more years, although net gains would depend on the costs incurred in implementing programs (see [endnote 2](#)).

Increases in productivity are often attributed to improvements in the quality of labour or to innovation - people doing their jobs 'smarter'. The headline indicator for productivity used in MAP is 'multifactor productivity'. Multifactor productivity represents the improvements in productivity which occur when increases in goods and services (outputs) exceed what can be accounted for by increases in labour, capital or other inputs. From 1996-97 to 2006-07, multifactor productivity rose 1.1% per year on average.



(a) Reference year for the index is 2005-06.

Source: [Australian System of National Accounts 2006-07](#) (cat. no. 5204.0).

A strong economy reinforces the social domain

A strong economy can benefit society in a number of ways, including by increasing:

- real national income, which potentially improves material living standards for individuals either directly or indirectly through government provision of goods and services e.g. infrastructure such as roads, funding for health care and education.
- employment
- skills
- wages and/or quality of working conditions for some people as demand puts pressure on supply.

Real net national disposable income per person is the headline indicator for the national income dimension in MAP. This indicator and the other headline indicators for the economy, such as real national net worth per person and multifactor productivity, suggest some progress for the economy over the last decade. Between 1996-97 and 2006-07, real net national disposable income per person grew by 2.9% a year on average, while our net worth per person grew by 0.9% a year.

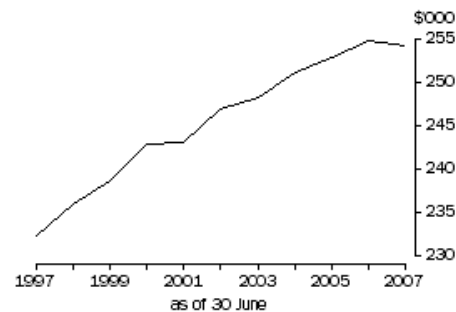
National income, Real net national disposable income per person



(a) Reference year for the index is 2005-06.

Source: [Australian System of National Accounts 2006-07](#) (cat. no. 5204.0).

National wealth, Real national net worth per person



(a) Reference year for the index is 2005-06.

Source: [Australian System of National Accounts 2006-07](#) (cat. no. 5204.0);

[Australian Demographic Statistics](#) (cat. no. 3101.0).

The benefits education has for productivity affects individuals since people with higher skill levels and who are more productive tend to earn more. The income people earn by working has implications for other, inter-related, aspects of life that are important to wellbeing such as good health, engagement with wider social networks, good educational opportunities and outcomes, freedom from financial stress, and a decent and affordable place to live. In 2006, the level of social attachment, as measured by daily contact with family and friends, ability to ask for small favours, and ability to get support in a time of crisis, generally increased progressively across each income distribution quintile from lowest to highest. Some studies suggest that unemployment is associated with poorer health, increased crime and higher risks of financial hardship and lower levels of social cohesion (see [endnote 3](#)).

Trade-offs and negative links

While there are many benefits to increased economic activity, there may also be trade-offs. Such activity can lead to inflation and can have an adverse effect on housing affordability when rising incomes and employment drive up demand, and demand outpaces supply. While inflation is defined as a rise in the general level of prices, not all prices change by the same proportion (or even in the same direction). For this reason, inflation can affect the distribution of real income and wealth for individuals and households.

Just as economic upturns may have societal benefits (as well as costs), economic downturns are likely to have costs. Higher unemployment has social costs in terms of potential economic hardship for individuals and families, and economic costs, since many unemployed people need income support. Unemployment and the accompanying loss of income can also affect self-esteem for the individual and their family. In MAP, the headline indicators for the work dimension of progress are the unemployment rate and the labour force underutilisation rate (underemployment). Consistent with indicators of economic progress, unemployment and underemployment have fallen over the last decade.

work, unemployment and labour force underutilisation rates



Source: [Labour Force, Australia, detailed electronic delivery](#) (cat. no. 6291.0.55.001), datacube LM8;
[Underemployed Workers, Australia](#) (cat. no. 6265.0).

RELATIONSHIPS BETWEEN THE ECONOMY AND THE ENVIRONMENT

A framework was developed in 2003 to integrate economic and environmental accounts to show the role the environment plays in productive activity and the impact of economic activities on the physical environment, thus allowing the implications for sustainability of different patterns of production and consumption to be examined. The [Handbook of National Accounting - Integrated Environmental and Economic Accounting 2003 \(SEEA\)](#) allows for the development of environmental accounts. It outlines extensions to the System of National Accounts (because many transactions involving environmental goods and services are not economic in a national accounting sense, they are excluded from the scope of the System of National Accounts) to cover a wide range of environmental and natural resources, and allows investigation of the interactions between the economy and the environment. SEEA allows for valuation of environmental expenditures (to protect or mitigate damage to the environment, e.g. pollution control equipment), environmental services and the consumption of natural capital (e.g. mineral resources, forests).

Environmental inputs for the economy

The economy draws inputs from the environment in the form of natural resources such as land, minerals, fish and water. Agriculture is the major form of land use in Australia. In 2006, 57% of Australia was used for agricultural activity with most of the land used for grazing.

Water is an essential environmental resource upon which the economy draws. In 2004-05, almost 80,000 gigalitres of water was extracted from the environment and used within the Australian economy. Industries such as agriculture, manufacturing and mining have particularly intensive use of water. In the year ending June 2005, about 1% of the 256 surface water management areas which were assessed were 'overallocated' and a further 17% were developed to a 'high' level. About 5% of the 356 groundwater management units which were assessed were 'overallocated' and another 24% had a 'high' level of development (see [endnote 4](#)).

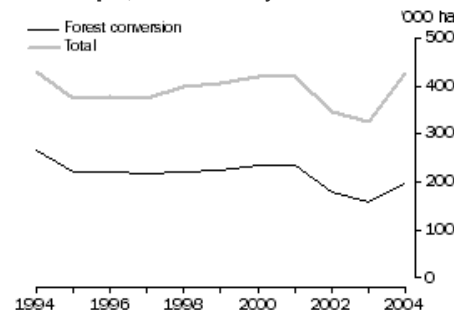
Industries are also dependent on the environment for the energy used in production. Most of the energy produced in Australia depends on the burning of fossil fuels, although some (about 8% in 2003) of the energy consumed comes from renewable sources such as wind, water (hydro electricity) or solar energy.

Trade-offs

Many of the relationships between the economy and the environment involve trade-offs. The economy's use of environmental inputs can threaten sustainability, with current environmental impacts and future economic impacts. Fishing is one example. One of the indicators used for the oceans and estuaries dimension in MAP is the number of fish species which are overfished. In 2006, for fish stocks managed by the Australian Government, 19 of the 97 principal species that are classified were overfished and/or subject to overfishing. This compares with 3 species (of 48 species classified) in 1996 (see [endnote 5](#)).

Land clearing, which is most often done for agricultural purposes (see [endnote 6](#)), destroys plants and removes the food and habitat on which native animals rely. Clearing allows weeds and invasive animals to spread, is a source of greenhouse gas emissions (since trees and other plants take up CO₂ from the atmosphere and carbon is released back into the atmosphere through burning or decay, see [endnote 7](#)) and can lead to soil degradation, such as erosion and salinity, which in turn can affect water quality. One of the headline indicators used in MAP is the annual area of land cleared. About 425,000 hectares of land were cleared in 2004, 1% less than the 431,000 hectares cleared in 1994.

The natural landscape, Biodiversity - Annual area of land cleared



Note: Estimates for 2003 and 2004 are preliminary. Data for 2005 have not been included as the area of land cleared was not re-estimated for the 2005 National Greenhouse Gas Inventory.

Another headline indicator is greenhouse gas emissions. Australia's net greenhouse gas emissions in 2005 totalled 559 megatonnes (Mt) CO₂ equivalent, an increase of 2.2% since 1990. The energy sector was the largest source, contributing 70% of emissions, with agriculture the second largest emitter at 16%. The agriculture industry is the major source of both methane (accounting for 59.5% of methane produced in 2005) and nitrous oxide (85%) emissions. The sources of these emissions include: digestion of feed by livestock; the application of fertiliser, crop residues and animal wastes to land; and burning of grasslands and crop stubble (see [endnote 8](#)).

Reinforcements

While economic activity can have a negative impact on the environment, the fact that environmental resources are needed as an input to production acts as an economic driver to protect the environment. Investment in research and development can lead to technological innovations that result in more efficient production processes. Additionally, economic activity generates income streams to governments, which can be diverted into environmental programs and initiatives.

Decoupling

Despite the impetus for environmental protection, the natural environment may be traded off for economic progress. 'Decoupling' is the concept of breaking the link between the two, so that economic progress is achieved without harming the environment. Decoupling can also apply to the social and economic domains. It is included here to demonstrate how the need to make trade-offs (in this case, environmental trade-offs) can be lessened.

Decoupling can be measured by indicators that use an environmental pressure variable as the numerator and an economic variable as the denominator. For example, at the national level the growth rate of emissions of carbon dioxide can be compared with the growth of GDP. It is also possible to decompose such indicators to highlight the extent to which various factors, such as different technologies or structural changes, have contributed to environmental pressures. At a sectoral level the growth rate of emissions of carbon dioxide from electricity use, in the energy sector, for example, may be compared to the growth rate of total primary energy supply (see [endnote 9](#)). The OECD has developed a range of decoupling indicators: some relate to decoupling economic activity from climate change, air pollution, water quality, waste disposal, materials use and natural resources; while others focus on environmental pressures in sectors such as energy, transport, manufacturing and agriculture.

Decoupling may be 'absolute' or 'relative'. Absolute decoupling occurs when an environmental variable (e.g. carbon dioxide emissions) is either unchanged or falling while an economic variable to which it has been causally linked (e.g. GDP) has grown. Relative decoupling occurs when the variable of environmental pressure grows, but grows at a slower rate than the economic variable (see [endnote 9](#)).

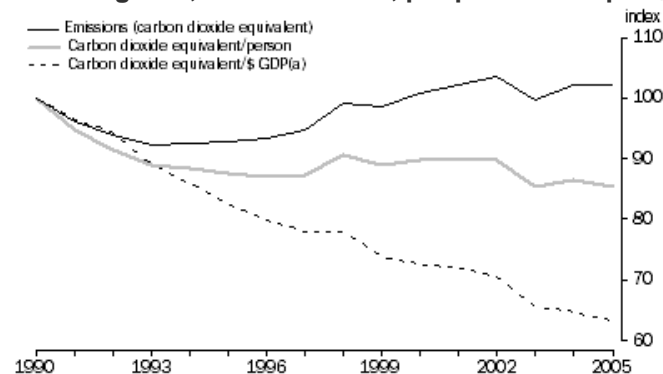
Analysis done by the OECD in 2002 suggested that, for most of the decoupling indicators for which there are Australian data available (about half of the indicators), some level of decoupling had occurred in Australia since the early 1980s. Most of this was relative decoupling (see [endnote 9](#)).

Examples of such decoupling indicators, for the economy and climate change, include total greenhouse gas emissions per unit of GDP and per person. These indicators are included in the air and atmosphere dimension of MAP. From 1990 to 2005 Australia's net greenhouse gas emissions (CO₂ equivalent) per person fell by 15% (see [endnote 10](#)). Nevertheless, Australia continues to have a relatively high level of per person emissions compared with other OECD countries (see [endnote 11](#)) as a result of:

- the dominance of the use of coal as a fuel in the electricity industry where, by contrast to many other OECD countries, there is no nuclear power produced and hydro-electric power options are limited
- net emissions from the land use, land use change and forestry sector (this sector accounts for changes in the amount of carbon biomass in vegetation and soil as a result of people's use of the land. It includes the effect of new forestry plantings as well as deforestation)
- the fact that many of the goods Australia produces for export - resource and agricultural products - have high associated emission levels (see [endnote 8](#)).

The length of time series available (the series for greenhouse gas emissions starts at 1990) does not allow an assessment of whether there have been changes in the relationships over a long period, in order to assess whether progress has been made. There may have been similar falls in emissions per person in the past.

Greenhouse gases, emissions: net, per person and per \$GDP



(a) GDP is a chain volume measure. Reference year for the chain volume measures is 2003-04.

Note: Base year is 1990.

Source: Australian Greenhouse Office;

[Australian Demographic Statistics, June 2007](#) (cat. no. 3101.0);

[Australian System of National Accounts, 2004-05](#) (cat. no. 5204.0).

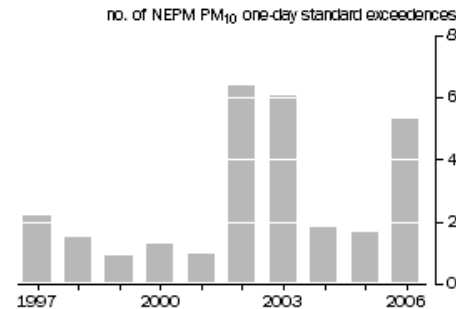
RELATIONSHIPS BETWEEN THE ENVIRONMENT AND SOCIETY

The environment affects society

People rely on the environment. Products such as food, clean water and fuel are essential for people's health and comfort. Households consumed just over 2000 gegalitres of water in 2004-05 (down slightly from 2000-01 consumption), or 11% of total water consumption.

The environment affects people's health in a number of ways. One example is the health effects linked to ultraviolet exposure. Australia has high levels of UV radiation and the highest per person incidence of melanoma in the world. Another example is air quality. Poor air quality can cause health problems. The headline indicator used for air and atmosphere in MAP considers the concentration of fine particles in the atmosphere, a measure of the form of air pollution about which many health experts in Australia are most concerned. Overall, air quality in Australia is relatively good, although the impact of bushfires and dust storms can be seen in recent years.

The air and atmosphere, Days fine particle health standards were exceeded



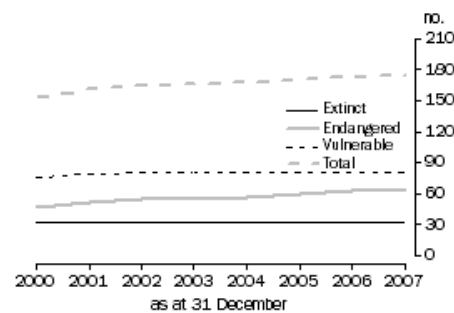
Source: State environmental protection agencies, 2008.

In addition to the products and services the environment provides, the environment has intrinsic value. In considering the value of conservation of the world's natural resources, most frameworks allude to the enjoyment people gain from recreational activities, but also recognise that some people may gain satisfaction simply from knowing that the natural environment exists (even if they never experience parts of it themselves). Many cultures, including those of Australia's Indigenous peoples, have strong spiritual links to the land and its wildlife.

Trade-offs and reinforcements

People affect the environment in both positive and negative ways by the things they do. The value people place on the environment has led to laws being passed to protect endangered species. However, consideration for the conservation of the natural environment can involve trade-offs in relation to lifestyles and use of resources which people are not always willing to make. One of the headline indicators presented in MAP is the number of threatened bird and mammal species. Between 2000 and 2007 the number of terrestrial bird and mammal species assessed as extinct, endangered or vulnerable rose from 153 to 174, an increase of 14%. While some change in biodiversity might be expected due to other causes, loss of native vegetation due to human activity such as land clearing has been identified as a key threat to Australia's biodiversity (see [endnote 12](#)).

The natural landscape, Biodiversity - Threatened bird and mammal species(a)



(a) Excludes seabirds, marine mammals and animals living on islands far offshore.

Source: Department of the Environment, Water, Heritage and the Arts, 2008.

In addition to the regulatory and legal frameworks governing environment protection, increased environmental awareness has led to people adopting measures to reduce our impact on the environment, such as recycling household waste (99% of households recycled products in March 2006, up from 85% in May 1992). Australians are also concerned about the conservation of water resources. As a response to drought conditions and consequent water use restrictions, many Australian households have used measures to conserve water in recent years. In 2007, the majority of Australian households had some type of water conservation device installed in their home.

People are also responsible for negative consequences for the environment. Population growth and urban expansion, particularly in coastal areas and capital cities, are placing increased pressure on the environment in those locations (see [endnote 12](#)). An example of a trade-off between society and the environment is when people contribute to increased greenhouse gas emissions through consumption of goods and services, such as household appliances and use of motor vehicles. The rise in greenhouse gas emissions over the period 1990 to 2005 was primarily driven by a rise of 43% (83.4 Mt CO₂-e) in emissions from the stationary energy sector. Of the activities covered by the stationary energy sector, electricity production has by far the largest overall impact on the environment. The 43% rise in emissions was driven in part by increasing population and household incomes (leading to higher demand for goods and services). Transport was the next largest growth sector with an increase of 30% (18.5 Mt CO₂-e). Road transport was the main source of transport emissions in 2005 (88%) and passenger cars were the largest transport source (see [endnote 8](#)).

CONCLUSION

The headline indicators presented in MAP suggest some progress in the economic and social domains over the last decade. This article has illustrated some of the associated reinforcement between economic and social progress. While the environmental domain is more difficult to measure comprehensively, some of the headline indicators suggest that economic and social progress has come partly at the cost of negative environmental impacts. Nevertheless, there is some evidence of relative decoupling in recent years that has reduced the trade-off between economic growth and environmental degradation. Sustainability is important in this context, and international initiatives to develop indicators of sustainability currently underway may help inform the presentation of MAP indicators in the future.

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LIFE SATISFACTION AND MEASURES OF PROGRESS

Measures of Australia's Progress was developed to help Australians address the question "Has life in our country got better or worse, especially during the past decade?". To help answer this question, MAP looks beyond Gross Domestic Product (GDP), which has traditionally been a key measure of national progress, to provide a selection of statistical evidence about aspects of Australian life across the economy, the environment and society. Within these domains, dimensions of progress encompass national income, wealth and productivity, the quality of our environment, the wellbeing of the population in terms of health, education, work, housing and economic resources, and the way we live together in society.

However, some would argue that just as important as knowing whether these aspects of life in Australia are improving, is knowing whether people actually feel that their wellbeing has improved, that is whether we are actually happier or more satisfied with our lives.¹ In the late 18th century, welfare economists debated the role that improving people's utility (a concept closely related to happiness) can play in improving population wellbeing. In recent years, this focus on happiness has enjoyed a resurgence with interest focussing in particular on people's opinions and feelings about their lives as being relevant to our understanding of national wellbeing.

Progress is closely related to the concept of wellbeing, with the idea that enhanced population wellbeing is

one of the outcomes of improving life in Australia. The current indicators in MAP tend to focus on the more objective elements of wellbeing, that is the conditions and aspects of people's lives and the society they live in. Public policy tends to be aimed at improving or enhancing these conditions. However, it does not always follow that improving particular living conditions will make a person happier or more satisfied, as people place different importance on the different aspects of their lives (and on life in Australia generally) and in many instances these aspects are in competition with one another.

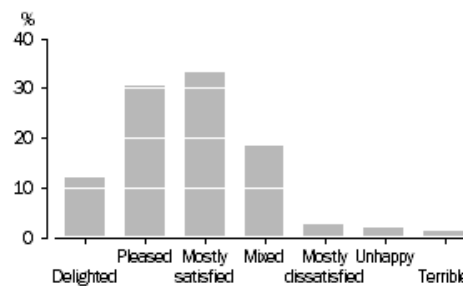
LIFE SATISFACTION AND HAPPINESS, AND HOW THEY ARE MEASURED

Notions of happiness and life satisfaction are concerns for a wide range of disciplines, including economics, psychology, sociology, neuroscience and public policy. Psychologists often distinguish between the two concepts, with happiness relating to the more temporal concept of positive affect (i.e. positive mood, feelings of pleasure, joy etc.) and life satisfaction constituting the more cognitive concept of an individuals' appraisal of his or her life situation overall – the totality of pleasures and pains, or quality of life.² However, the term happiness is often used in a broader context (for example by economists in their discussion of 'utility') and in many fields, data on happiness and life satisfaction are used interchangeably, as are the terms themselves.

Life satisfaction and happiness both fall under the umbrella term subjective wellbeing which relates to the way people feel about their lives. Subjective wellbeing complements the more objective aspects of wellbeing which relate to the actual circumstances and conditions of people's lives (for example their health or income). This essay focusses mainly on the concept of life satisfaction. To date, the most common method used to measure life satisfaction, and indeed happiness, has been the use of survey questions asking people to report on their perceived levels of life satisfaction.

Based on the findings of such surveys, it is generally agreed that life satisfaction and happiness are closely correlated. However, life satisfaction surveys produce greater variation over time and are the more commonly used, with respondents being asked questions such as "All things considered, how satisfied are you with your life as a whole these days?" or something similar. Respondents are given a scale of between two and ten points against which to rate their level of satisfaction. A four-point scale, for instance, would include responses such as 'Very satisfied', 'Quite satisfied', 'Not very satisfied' or 'Not at all satisfied'. In our 2001 National Health Survey, the ABS used a seven point scale with responses ranging from 'Delighted' to 'Terrible'. Some studies into life satisfaction ask people questions about whether they believe that circumstances have or will improve. Others focus on the concept of domain satisfaction which refers to people's level of satisfaction with particular aspects of their lives (such as work or family life) or with aspects of the society in which they live (such as the economy or the state of the environment).

LEVELS OF LIFE SATISFACTION OF PERSONS AGED 18 AND OVER - 2001



Source: ABS 2001 National Health Survey

In 2001, the ABS collected some information on people's overall life satisfaction in the National Health Survey. When asked about how they felt about their lives as a whole, 76% of Australian adults indicated they were delighted, pleased or mostly satisfied with their lives. Less than 6% of people combined indicated that they felt mostly dissatisfied, unhappy or terrible about their lives.

There is no established long-term time series of life satisfaction (or happiness) in Australia, although findings from various surveys conducted since the 1950s produced results within a fairly narrow range, that is average life satisfaction of around 6.5 to 7.5 on a scale of one to ten, indicating general satisfaction with their lives. This is despite the many changes in the social, economic and environmental conditions of Australian's lives during these decades. Surveys in other Western countries have produced similar results.³ For these reasons (which largely reflect the nature of life satisfaction or happiness itself, discussed in the following section), many researchers in this area agree that measures of overall life satisfaction and happiness are most useful when analysed in conjunction with other data about people's quality of life or life circumstances.

There are still many challenges in understanding the nature and quality of these life satisfaction measurements and how they relate to the social and economic conditions and outcomes which shape Australian life. For these reasons, it is not clear, as yet, that any particular measure of life satisfaction would meet the criteria for inclusion as an indicator of progress in MAP, even if time series data were available. However, the ABS acknowledges that there is growing interest in life satisfaction (or happiness) as an important aspect of life in Australia. This essay outlines some of the recent research into life satisfaction and the issues associated with its measurement so that readers can consider how Australians' feelings about their lives might relate to the picture of progress presented by the indicators in MAP.

INDIVIDUALS AND LIFE SATISFACTION

What one person feels is important may not be so to someone else. This individual nature of life satisfaction contributes to many of the difficulties associated with its measurement, the ability to interpret those measurements, and to use the findings to improve overall wellbeing at the societal level. For those interested in national wellbeing, an approach which focusses on the external determinants of wellbeing has obvious appeal. It is based on the idea that there are basic and universal human needs, and if one's circumstances allow a person to fulfil these needs, he or she will be happy.⁵ The approach considers the net sum of experiences and circumstances across the various aspects of life such as health, work, family life, income and leisure. At its broadest level, this approach draws from a similar underlying framework to the ABS system of

social statistics used to measure the wellbeing of our population.

Analyses of the relationship between life satisfaction and various demographic, social and economic variables suggest that in many cases the relationship is not strong. At the same time, certain personality traits have been found to be strongly associated with high levels of life satisfaction or general happiness. Over the years, considerable research (predominantly in the field of psychology) has focussed on the relationship between life satisfaction and internal characteristics of the individual, such as personality or temperament. Such research has found the following characteristics are positively correlated with high levels of self-reported life satisfaction:

- extroversion;
- optimism; adaptability;
- high self esteem;
- the ability to set compatible goals and progress towards them;
- the ability to understand and interpret the world;
- a sense of meaning in life (or spirituality); and
- a sense of personal control or agency.

At the other end of the spectrum, neuroticism (or a tendency to worry) has been found to have a negative relationship with life satisfaction.⁵

INTERPRETING MEASURES OF LIFE SATISFACTION

Several characteristics of general human behaviour (or human nature) are believed to influence our sense of wellbeing. All of these characteristics have a regulatory effect on life satisfaction levels (although this operates in very different ways for each) and therefore impact on the way data on this topic can be interpreted and related to other aspects of people's lives, such as their social and economic circumstances.

These are:

- *a natural tendency to feel good about ourselves and our lives.* While a person's happiness levels can fluctuate over time in response to changing circumstances, trauma or crises, there is a tendency for levels of overall life satisfaction in Western countries to return to a fairly narrow range clustered around 70 on a 100 point scale.⁴ This phenomenon is referred to as homeostasis.
- *the ability to adapt to our circumstances be they good or bad.* Just as our bodies can make physiological adjustments to things like heat or cold, it is believed that we adjust psychologically to both good or bad events so that we do not remain in a state of elation or despair.⁵ For example, studies in the 1970s and 1980s found that winning the lottery or suffering a spinal cord injury resulting in paraplegia or quadriplegia, did not significantly impact on people's levels of happiness over time.⁵ While the ability to adapt varies between individuals, it has also been found that, on average, some circumstances take longer to adapt to than others.
- *the tendency to compare ourselves with others, with our past circumstances, with our own aspirations, or some other benchmark.* Sometimes referred to as discrepancy theory, this relates to the way that people make such comparisons and then judge their own wellbeing in relation to them. If these comparisons

favour an individual, they are more likely to express higher levels of life satisfaction, than if the comparison is an unfavourable one. Thus a particular level of income may contribute to the satisfaction of someone who is well-off relative to those around that person, but not to someone who is earning less than those around him or her.

- *the ability to make trade-offs.* As well as the ability to adjust our expectations to our circumstances or level of resources, people have the ability to change their preferences and/or the priorities they place on various aspects of their lives.

Income (or standard of living) has conventionally been regarded as a key determinant of wellbeing, and so many studies of happiness or life satisfaction have focussed on changes in relation to changes in an individual's economic circumstances. For example, research suggests that people's life satisfaction subsides as they get used to higher income levels over time, a phenomenon referred to as the 'hedonic treadmill'. Another example is that the diminishment of life satisfaction caused by a loss of income has been found to be considerably larger than the enhancement of life satisfaction caused by an equivalent gain.⁶

**PROPORTION OF PERSONS AGED 18 AND OVER WHO WERE SATISFIED WITH THEIR LIVES(a)(b):
SELECTED CHARACTERISTICS - 2001**

	%
Never married	71.7
Married	80.6
Separated/divorced	63.1
Non-dependent child in couple family	78.0
Non-dependent child in one parent family	63.6
Partner in couple, no children	82.0
Parents in couple families with children	75.3
Lone parents	59.9
Living alone	67.7
With a long-term health condition	74.6
No long-term health condition	82.6
With mental and behavioural problems	45.6
With high/very high levels of psychological distress	33.8
With a non-school qualification	78.4
Without a non-school qualification	72.5
Employed	79.7
Unemployed	56.2
Not in the labour force	68.1

- (a) Persons who felt Delighted, Please or Mostly satisfied with their lives based on a scale of Delighted, Pleased, Mostly satisfied, Mixed, Mostly dissatisfied, Unhappy and Terrible.
- (b) Age standardised.

Source: ABS 2001 National Health Survey

UTILITY AND WELLBEING

In the past few years, economists have increasingly looked beyond conventional measures of growth to the field of psychology and subjective concepts when considering wellbeing in society. However, the focus on happiness, as it relates to utility, in economics dates back to the 18th century, evolving from debates around the role of public policy in maximising utility across society as a whole. Utility was defined as people's ability to meet their needs, thereby optimising their wellbeing, and was regarded as measurable, and comparable across the population, with conventional analysis focussing on income (which in turn reflects consumption possibilities) as its main determinant.

In 2004, the Australian Government Department of the Treasury produced a Wellbeing Framework.⁹ In seeking to 'improve the wellbeing of the Australian people', the framework draws on the premise of early utility-based welfare economics that maximising aggregate utility corresponds to maximising overall wellbeing. In doing so, it recognises a range of determinants for utility (beyond just income and GDP), but broadens the constituents of utility (beyond just individual happiness) to include elements of the more contemporary capabilities framework. The capabilities framework takes into account not only the primary goods the persons respectively hold, but also the capabilities needed for people to use these resources to lead the lives that they value. Accordingly, Treasury's Wellbeing Framework comprises five dimensions:

- the level of opportunity and freedom that people enjoy (i.e. the capacity to choose the lives they want to live)
- the level of consumption possibilities (i.e. people's command over resources to obtain goods and services to satisfy their needs and wants)
- the distribution of consumption possibilities (i.e. the spread of all aspects of consumption across the population, including across different groups in society, across different geographic regions and across generations)
- the level of risk people are required to bear (which optimally should match their risk preferences) and
- the level of complexity people are required to deal with (with an emphasis on matching this to community preference so that opportunities are not limited by it).

COMPARING LIFE SATISFACTION ACROSS NATIONS

For those interested in looking beyond GDP for measures of national wellbeing, much interest has focussed on the fact that since the 1950s, while estimated levels of life satisfaction and happiness across the population have not changed greatly in many of the wealthier developed nations, these countries have sustained strong economic growth. For example, in the United States (the country for which the longest time series is available), while measures of subjective wellbeing have consistently produced life satisfaction levels for

Americans of around 70%, real GDP per capita has more than doubled over the same period.⁷

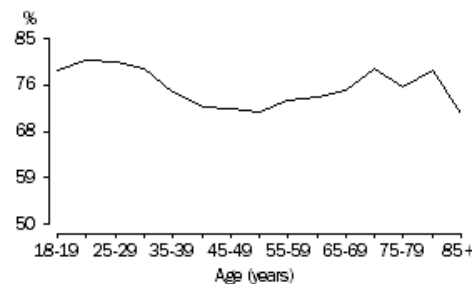
One major area of research into alternative measures of wellbeing has been the comparison of levels of wellbeing and happiness across nations. Initiatives such as the World Bank's Human Development Index are designed to provide information on how quality of life differs across nations (with a view to improving it – particularly for developing nations), using a small set of data about the conditions of life in each nation. Other initiatives attempt to provide a complementary or alternative view of wellbeing by focussing on subjective measures. The World Values Survey⁸ and the World Database of Happiness³ are two major initiatives of this type.

People from different cultures bring different meaning to the notions of life satisfaction and happiness based on differing cultural values, structures, histories and circumstances. This, combined with the individual nature of life satisfaction and some of the other more universal human phenomena which characterise subjective wellbeing, are factors which should be considered when interpreting international comparisons of life satisfaction. Differences in survey conditions, methodologies, and response rates will also influence the reliability and interpretation of results. At the same time, international comparisons allow us to consider ourselves in a broader context and to consider other ways of being or achieving similar outcomes.

The Erasmus University of Rotterdam's World Database of Happiness contains data on life satisfaction for 90 nations. These data have been collected at different times using a variety of survey methodologies. Overall life satisfaction scores collected from these countries in the 1990s ranged from 3.2 to 8.0 on a scale of one to 10.3 Australia's average score of 7.3 was among the highest scores, comparing favourably among countries with high levels of per capita income. Countries such as the United Kingdom, New Zealand and the USA all had very similar levels of life satisfaction to Australia. There was a tendency for poorer countries to report lower levels of life satisfaction, and for levels to be higher as income increased (as measured by GDP per capita, Purchasing Power Parity), for levels up to \$US15,000. Across countries where GDP per capital exceeded this, satisfaction levels across countries tended to be more similar.

A 1996 analysis of these measurements from the 1990s and other data relating to 48 countries found a range of characteristics were associated with high levels of life satisfaction.¹⁰ Examples of these included purchasing power, respect of civil rights, social participation, industrialisation, perceived freedom in life, literacy, tolerance, and participation in work. Conversely characteristics associated with low levels of life satisfaction included high murder rates, lethal accidents, and incidence of corruption.¹⁰

PROPORTION OF PERSONS WHO WERE SATISFIED WITH THEIR LIVES(a) - 2001



(a) Persons who felt Delighted, Pleased or Mostly satisfied with their lives based on a scale of Delighted, Pleased, Mostly satisfied, Mixed, Mostly dissatisfied, Unhappy, and Terrible.

Source: ABS 2001 National Health Survey

THE AUSTRALIAN UNITY WELLBEING INDEX

The Australian Unity Wellbeing Index is a joint development of Australian Unity, Deakin University and the Australian National University which focusses on people's views on life in Australia and on their own individual wellbeing.

The main premise on which the index is based is that life satisfaction is normally held within a narrow positive range, and that this homeostasis operates at a non-specific or abstract level, and is highly personalised. This means that a person will generally answer fairly positively to broader questions around wellbeing, regardless of most events occurring at the time the measurement is taken. At the same time, this narrow positive band is more likely to be maintained for questions about the individual than those about family or friends or, to a greater extent, about society in general. On the basis of this theory, questions about specific aspects of society or life in Australia would be more sensitive to external happenings than broad questions about a person's current level of satisfaction with their own life as a whole.

The Australian Unity Wellbeing Index consists of two indices: the personal wellbeing index, which measures people's satisfaction with their own lives (or with seven aspects or domains of their personal lives); and the national wellbeing index, which measures people's satisfaction with life in Australia (or with six aspects or domains of life in Australia). Between April 2001 and July 2005, respondents tended to report higher levels of satisfaction with their personal lives than with life in Australia, with the personal wellbeing index consistently showing average satisfaction levels at around 75%, compared with 60% for the national wellbeing index. Over the period, people responding to questions on national wellbeing tended to report lower satisfaction (albeit at levels above 50%) with the state of the environment than they did about social conditions in this country. However, reported levels of satisfaction with our economic situation were higher (since March 2002 and gradually increasing over the period to July 2005). It should be noted that these results are based on overall survey response rates of less than 25%.¹²

LIFE SATISFACTION AND DIMENSIONS OF PROGRESS

National progress is one of a cluster of related concepts, which include wellbeing and quality of life. In embracing the social, economic and environmental aspects of Australian life, it is natural then that many of the indicators included in MAP focus on particular aspects of life that are 'of fundamental and direct importance to human wellbeing'. Thus, because the selection of these indicators of progress relates directly to their relationship with human wellbeing, it might be expected that changes in them would also be reflected as changes in measures of life satisfaction.

However, as discussed earlier, the very nature of human responses to changing circumstances and to the world around us is believed to regulate our overall sense of wellbeing over time to some degree. Further, across the population, a decrease in the wellbeing of some (whether in Australia or in other nations) might lead to an increased sense of wellbeing for others (because of the tendency for humans to judge their own

wellbeing in relation to others'). Thus, the relationship between 'external' measures of progress (i.e. those that focus on changes in aspects of people's lives) and overall life satisfaction is not a direct one.

That said, studies over the years have found that many social and economic characteristics are partially correlated with self-reported wellbeing. Some of these relationships are evident when looking at life satisfaction (or quality of life) data collected in the ABS 2001 National Health Survey. In considering these data we look at the proportion of people who reported that they were satisfied with their lives, that is they indicated they were delighted, pleased or mostly satisfied with their lives. As noted earlier, on average, 76% of Australian adults fell into this category. The proportion of people who were satisfied with their lives remained above 70% across all age groups. More people in their 20s reported they were satisfied with their lives than for any other age group, while those between 35 and 64 were less likely than average to indicate satisfaction with their lives. Those aged 85 or over were the least likely of all age groups to indicate they were satisfied (71%).

Conventional economic analysis of wellbeing (or utility) often assumes level of income as the prime determinant of wellbeing for individuals within society. In MAP, there are several dimensions which focus on the economic resources of Australians, at both the national and household levels. In the commentary on Economic hardship, we identify low income as a key indicator for this area. Taking into account the age structures of different income groups, 64% of people in income units in the low income group felt delighted, pleased or mostly satisfied with their lives in 2001 compared with 77% of people in income units in the middle income group and 86% of people in income units in the high income group.

The quality of a person's close relationships is one factor that most researchers agree has a fairly strong association with high levels of subjective wellbeing. As we note in the chapter on Family, community and social cohesion, people require love, companionship and agreeable engagements to flourish. In 2001, 81% of people who were married felt pleased or mostly satisfied with their lives compared with 63% of people who were separated or divorced. Lone parents and the adult children living with them were the people least likely across all living arrangements to feel pleased or mostly satisfied with life (60% and 64% respectively).

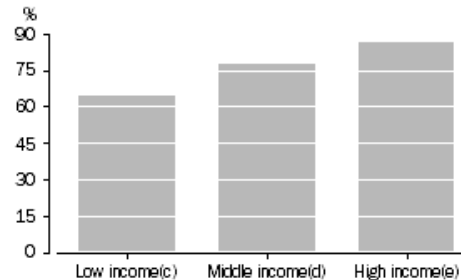
Participation, be it social, educational or in the workforce has also been associated with higher levels of life satisfaction. In MAP, Work and Education and training are both headline dimensions for individuals. In 2001, people who were employed and those with non-school qualifications had higher than average life satisfaction levels. Conversely, people who were unemployed were considerably less likely than the population as a whole to report that they were pleased or mostly satisfied with their lives (51%).

The ACER Longitudinal Survey of Australian Youth, also collects information on the life satisfaction of Australia's young people. Between 1999 and 2002, the survey found that of a cohort of young people who had been in Year 9 in 1995, those who were involved in full-time work, study or combination of both activities equating to a full-time load, consistently reported higher levels of life satisfaction than those whose total participation equated to a part-time load, or those not participating at all.¹³

Lastly, Health is a key dimension of progress for individuals. While a higher proportion of people without long-term health conditions indicated they were pleased or mostly satisfied with their lives (83%) in the 2001 National Health Survey than those who had long-term conditions (75%), differences were more evident in relation to indicators of mental health. Unhappiness is a symptom of many mental health conditions and so it

can be expected, that the presence of mental illness would lead to a lowering of self-reported life satisfaction. In 2001, the proportions of people with mental and behavioural problems, and those with very high or high levels of psychological distress who reported they felt pleased or mostly satisfied in life was below half – 46% and 34% respectively.

**PROPORTION OF PERSONS AGED 18 AND OVER WHO WERE SATISFIED WITH THEIR LIVES(a)(b):
EQUIVALISED INCOME - 2001**



(a) Persons who felt Delighted, Pleased or Mostly satisfied with their lives based on a scale of Delighted, Pleased, Mostly satisfied, Mixed, Mostly dissatisfied, Unhappy, and Terrible. (b) Age standardised. (c) People in income units in the 2nd and 3rd income deciles from the bottom of the distribution. (d) People in income units in the middle income quintile (5th and 6th deciles). (e) People in the income units in the highest income quintile (9th and 10th deciles).

Source: ABS 2001 National Health Survey

LIFE SATISFACTION AND THE ENVIRONMENT

Very few data exist on the relationship between happiness, or life satisfaction, and the environment, but it is clear that many people gain pleasure from natural environments.

In considering the value of conservation of the world's natural resources, most frameworks allude to the enjoyment people gain from recreational activities, but also recognise that people gain satisfaction simply by knowing that the natural environment exists (even if they never experience parts of it themselves). Many cultures, including those of Australia's Indigenous peoples, have strong spiritual links to the land and its wildlife. In 2000, research into the fundamental aspects of human capability included an ability "to live with concern for and in relation to animals, plants and the world of nature" as one of these.¹¹

At the same time, consideration for the conservation of our natural environment can involve trade-offs in relation to our lifestyles and use of resources. In 2004, the ABS Environment Household Survey found that 57% of Australians aged 15 and over were concerned about environmental problems

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SOME INTERNATIONAL COMPARISONS

INTRODUCTION

Measures of Australia's Progress (MAP) presents information on a range of issues that are of concern or interest to Australia and Australians. We can gain a greater understanding and an additional insight into Australia's progress by comparing our progress with that of other countries. Comparing Australia's progress with that of other countries allows us to make our own individual assessment of how particular aspects of life in Australia compare with those in other countries.

International comparisons for each of the headline indicators, or where an international comparison for the headline indicator is not available, a closely related indicator, are presented in the commentary for each of the dimensions, so are not repeated here.

This essay compares aspects of Australia's progress with that of other countries in the Organisation for Economic Cooperation and Development (OECD). Information about a range of progress dimensions – *Health; Education and training; National income; National wealth; The natural landscape; and Governance, Democracy and Citizenship* – is presented. A core set of countries are included in each comparison –

Canada, Italy, Japan, New Zealand, the UK and the USA – together with the highest and lowest performing OECD member states in each area. Most of the data used here come from the OECD.

The essay also draws out the relationship between the selected indicators and the headline indicators for these dimensions where applicable.

There are difficulties in drawing comparisons between countries. Perceptions of progress may differ between countries. An indicator that is viewed as key to progress in one country may be considered less important in another country.

Data comparability is an issue for international comparisons. For some indicators, say life expectancy at birth, where there is an agreed international definition, comparisons are most valid. For other indicators, say crime rates, differences might be influenced by compiling practices, or differences in law. For other indicators, say the number of people with degrees, differences might be influenced by university curriculum standards.

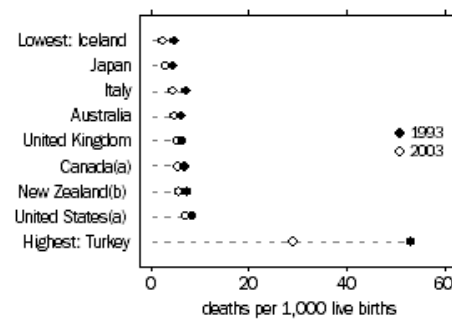
There are other factors that complicate statistical comparisons between countries. While there are agreed concepts, definitions and classifications for some data items collected, for many others the concepts, definitions and classifications used will vary. The time at which particular data are collected can also vary considerably between countries so it can be difficult to make an international comparison for a set point in time. This can be particularly so for less frequently collected data.

HEALTH - INFANT MORTALITY

Infant mortality is an indicator of the quality of a nation's antenatal care, the effectiveness of its obstetric services and the quality of its infant care in hospitals and the community.¹ The infant mortality rate is also indicative of socio-economic conditions in a country. The infant mortality rate is expressed as the number of deaths of children under one year of age expressed per 1,000 live births.

Infant mortality is closely related to the MAP headline indicator for *Health*: life expectancy at birth. A high infant mortality rate can lower average life expectancy, while a low infant mortality rate can contribute to increased average life expectancy. An international comparison for life expectancy at birth is presented in the *Health* commentary on page 34.

Infant mortality rate



(a) Data are for 2002 not 2003. (b) Data are for 2001 not 2003.

Source: [OECD in Figures 2005](#).³

In 2003, the infant mortality rate in Australia was around the median for the OECD at 4.8 per 1,000 live births. However, the infant mortality rate is not consistent for all population groups in Australia. The infant mortality rate for Indigenous Australians is three times the rate for non-Indigenous Australians for the period 1999–2003.² In keeping with this, higher infant mortality rates are also observed in rural and remote areas, and in areas characterised by higher levels of disadvantage.¹

The OECD country with the lowest infant mortality rate in 2003 was Iceland with a rate of 2.4 per 1,000 live births. All of the other Nordic countries (with the exception of Denmark) which have historically had low infant mortality rates, were among the five OECD countries with the lowest infant mortality rates in 2003. The two countries with markedly higher infant mortality rates than any other OECD countries were Turkey and Mexico with infant mortality rates of 29.0 per 1,000 live births and 20.1 per 1,000 live births respectively.

Given its wealth and level of development, the United States has a relatively high infant mortality rate at 7.0 per 1,000 live births, the fifth highest rate in the OECD. Factors such as the high level of teenage pregnancy and lack of free prenatal and perinatal care in the United States have been suggested as contributory factors underlying the higher observed infant mortality rate.⁴

During the decade between 1993 to 2003, Australia achieved a 21% reduction in infant mortality rate, from 6.1 to 4.8 per 1 000 live births. The introduction of a public education campaign about Sudden Infant Death Syndrome (SIDS) in the early 1990s has been successful in contributing to a substantial reduction in deaths from SIDS. Consequently, recent reductions in the infant mortality rate have been due to better treatment and the implementation of interventions such as the promotion of a prone sleeping position to prevent SIDS.¹

All OECD countries achieved reductions in their infant mortality rate in the period between 1993 and 2003. The Czech Republic, Portugal and Iceland all at least halved their infant mortality rate during this period. Infant mortality in the Czech Republic went from 8.5 to 3.9 per 1 000 live births, in Portugal from 8.7 to 4.1 per 1,000 live births and in Iceland from 4.8 to 2.4 per 1,000 live births.

Considering change over a longer period, Japan has achieved a very substantial decrease in its infant mortality rate from 30.7 per 1,000 live births in 1960, to 3.0 in 2003. Japan has changed from a country previously in the bottom half of OECD countries in terms of infant mortality rates in 1960 to currently being one

of the countries with the lowest rates, along with the historically low Nordic countries.⁴

EDUCATION AND TRAINING - AT LEAST UPPER SECONDARY EDUCATIONAL ATTAINMENT

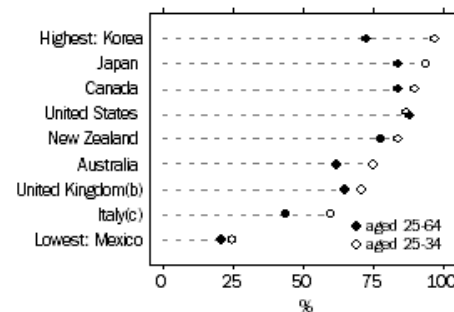
Education plays a key role in contributing to the economic prosperity of the nation. Education also contributes to the social fabric of a society, and helps shape the values and norms of that society. At the individual level, education helps provide the capacity for individuals to reach their full potential in an academic, professional, economic and personal sense.

One educational attainment indicator is the proportion of 25–64 year olds who have completed at least upper secondary education. This indicator is presented in this essay along with the proportion of 25–35 year olds who have completed at least upper secondary education.

While the MAP headline indicator for education focuses on the proportion of people with a vocational or higher education qualification (an international comparison for this indicator is presented on page 46), the proportion of the population who have completed at least upper secondary school education is also useful as an indicator for education and training. Completion of upper secondary education is sometimes a prerequisite for entry into higher education and increasing numbers of young people are completing upper secondary school education, increasing the pool of people potentially eligible to undertake and complete a higher education qualification. Further in Australia some vocational qualifications are regarded as a lower level of attainment than the completion of upper secondary school.

Focussing on the attainment of people aged 25–64 gives an indication of whether completion of upper secondary school education has been the norm in a particular country for past generations. Focussing on the attainment of the population aged 25–34 is indicative of generational change for the younger age cohort. These indicators also provide some sense of the skills available in the population and labour force.

Educational attainment: at least upper secondary level^(a) - 2003



(a) The OECD definition of at least upper secondary level education corresponds to the final stages of secondary education and above.

In the Australian context, this includes completion of Years 11 or 12 of secondary school, Certificate III or IV, Diploma, Advanced Diploma, Bachelor Degree or above. Refer to The International Standard Classification of Education: ISCED 97, UNESCO, Paris, 1997 for more details.

b) Includes some ISCED 3C short programmes. (c) Data are for 2002.

Source: [OECD Education at a Glance 2005](#).⁵

In 2003, the rate of completion of at least upper secondary education in Australia for the population aged 25–64 years was 62%, slightly below the OECD average of 66%. The rate for 25–34 year olds was 75%, equivalent to the OECD average.

In 2003, the OECD country with the highest proportion of 25–64 year olds who had completed at least upper secondary education was the United States (88%). The Slovak Republic (87%), Norway (87%) and the Czech Republic (86%) had the next highest proportion of people with at least upper secondary educational attainment.

Korea had the highest proportion of 25–34 year olds with at least upper secondary school educational attainment (97%). Mexico had the lowest rate of upper secondary school attainment for both 25–64 year olds (21%) and 25–34 year olds (25%). Attainment of at least upper secondary education was also relatively low in Portugal and Turkey, with attainment rates of 23% and 26% for the population aged 25–64.

The completion of at least upper secondary school is increasing in almost all OECD countries. This is having a flow-on effect as the proportion of 25–34 year olds who had completed at least upper secondary education was higher in every country, with the exception of the United States, than for the population aged 25–64. The growing skill requirements of labour markets, an increase in unemployment in a number of countries in recent years, and higher expectations among individuals have contributed to an increase in the proportion of young people who obtain a higher education qualification (and therefore complete upper secondary school).⁵

In 2003, in OECD countries with high levels of at least upper secondary school attainment, the difference in education attainment between the 25–34 year old age group and the population aged 25–64 years was relatively small. This reflects a longer tradition of at least upper secondary school educational attainment in these countries. This was most noticeable in the Czech Republic, the Slovak Republic, Norway and Canada. The exception to this pattern was in Korea where 97% of 25–34 year olds had completed at least upper secondary education compared with 73% of the total population (25–64 year olds).

NATIONAL INCOME - CONSUMPTION EXPENDITURE

Final consumption expenditure is a key indicator of the economic wellbeing of a population as it provides a measure of the level of goods and services a society is able to consume to meet their needs and wants. Households, including those non-profit institutions that serve households, and governments are the ultimate (final) consumers of goods and services within an economy. Household purchases of goods and services constitute the largest part of final consumption expenditure. Governments and non-profit institutions serving households generally provide a range of services to households either for free or at a low price. The cost to the government or the non-profit body that provides these services, in delivering these services, is also an important part of total final consumption expenditure.

Actual individual consumption (comprising household final consumption expenditure and government final consumption expenditure on individual goods and services) is a significant component of Gross Domestic Product (GDP). GDP is a measure of the economic value of production of those activities that fall within the boundary of the National Accounts system. There is an important relationship between GDP and household

consumption expenditure.

Actual individual consumption

Actual individual consumption is the total value of household final consumption expenditure, and government final consumption expenditure on individual goods and services.⁶

Household final consumption expenditure is the market value of all goods and services, (including durable products such as cars, washing machines, and home computers), purchased by households.⁷ Household final consumption also includes the value of goods and services produced by non-profit institutions serving households.⁷

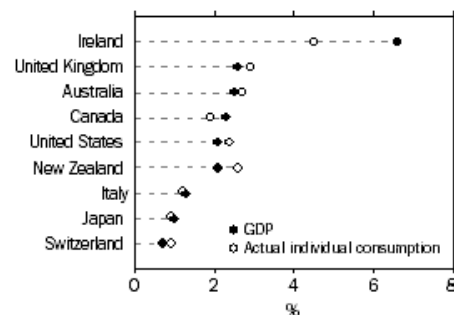
Government final consumption expenditure is current expenditure by general government bodies on collective services such as defence and public order and safety which are consumed by the community as a whole, and on individual goods and services such as health and education which are consumed by individuals. Only that government expenditure on individual consumption goods and services is included in actual individual consumption. Transfer payments such as social assistance benefits are not included.⁸

Household final consumption expenditure and government final consumption expenditure on individual goods and services are also closely related to real net national disposable income. As disposable income increases, so does the capacity for households to purchase additional goods and services, and for government to provide goods and services. For more detail, see the international comparisons for Gross National Income and growth in GDP on page 64, and the headline indicator for *National Income: Real Net National Disposable Income* on page 60.

The indicator presented here is actual individual consumption per capita, divided into its two components – household final consumption expenditure and government final consumption expenditure on individual goods and services, both expressed in US dollars. The average annual growth in GDP per capita between 1994 and 2004

is also presented in the following graph to show growth in actual individual consumption against growth in GDP.

Average annual growth in GDP and individual consumption expenditure^(a) - 1994 to 2004



(a) Calculated using GDP and actual individual consumption estimates expressed as US dollars at constant prices and constant PPPs.

In 2004, Australia's actual individual consumption per capita was \$23,200, which was above the OECD average of \$21,000. This comprised household final consumption expenditure of \$19,000, and government final consumption expenditure on individual goods and services of \$4,200.

Luxembourg had the highest level of actual individual consumption per capita (\$31,500) of all OECD countries in 2004. The United States had the highest per capita level of household final consumption expenditure (\$27,900), while Luxembourg had the highest level of per capita government final consumption expenditure on individual goods and services (\$8,300). Turkey had the lowest actual individual consumption per capita (\$5,600), made up of household final consumption expenditure of \$5,000 and government final consumption expenditure on individual goods and services of \$600.

In 2004, the level of actual individual consumption per capita in most OECD countries was closely related the level of GDP per capita. Countries with relatively high levels of GDP per capita such as Luxembourg, the United States and Norway also had relatively high levels of actual individual consumption per capita. Countries with low levels of GDP per capita such as Turkey, Mexico and Poland recorded the lowest levels of actual individual consumption. This pattern was also observed for household final consumption expenditure, which is the major component of actual individual consumption.

The level of government final consumption expenditure on individual goods and services in OECD countries is more likely influenced by factors such as government policy and societal attitudes to government spending than by the level of GDP. Sweden, a country with a moderately high level of GDP per capita in 2004 (\$31,100), has a tradition of a high level of government provision of goods and services. In keeping with this Sweden had a relatively high level of government final consumption expenditure on individual goods and services in 2004 (\$7,200). In contrast, the United States with a higher level of GDP per capita in 2004, (\$39,700) is a country with societal expectations that individuals bear a much greater share of the provision of goods and services. The United States had a relatively low level of government final consumption expenditure on individual goods and services (\$2,500) in 2004.

As GDP increases, consumption expenditure also tends to increase. Increases in actual individual consumption per capita in OECD countries in the period between 1994 and 2004 generally reflected the magnitude of increases in GDP per capita. Countries that experienced high average annual rates of growth in GDP per capita such as Ireland (6.6%), Poland (4.5%) and the Slovak Republic (4.2%) also had substantial average annual growth in actual individual consumption per capita (4.5%, 4.0% and 4.9% respectively).

Countries with lower annual average growth in GDP per capita during the period 1994–2004 such as Switzerland (0.7%), Japan (1.0%) and Mexico (1.1%) experienced lower growth in actual individual consumption per capita (0.9%, 0.9% and 1.0% respectively). However, despite relatively low per capita growth in GDP and actual individual consumption, Japan experienced one of the highest average annual rates of growth (3.1%) in government final consumption expenditure on individual goods and services, the smaller component of actual individual consumption.

While increases in consumption expenditure generally reflected increases in GDP in the period between 1994 and 2004, the average annual rate of growth in actual individual consumption per capita was lower than the

rate of growth in GDP per capita in more than half of OECD countries. However, there were a number of OECD countries where average annual growth in individual actual consumption expenditure per capita during this period was somewhat greater than growth in GDP per capita. For example, in the Slovak Republic actual individual consumption per capita grew on average by 4.9% and GDP by 4.2%. In Norway actual individual consumption per capita grew on average by 3.1% and GDP by 2.4%, and Iceland where individual actual consumption per capita grew by 3.2% and GDP by 2.7%.

Between 1994 and 2004 actual individual consumption per capita in Australia grew on average by 2.7% per year while GDP per capita grew by 2.5%. Australia's growth in both GDP per capita and actual individual consumption per capita was above the OECD average.

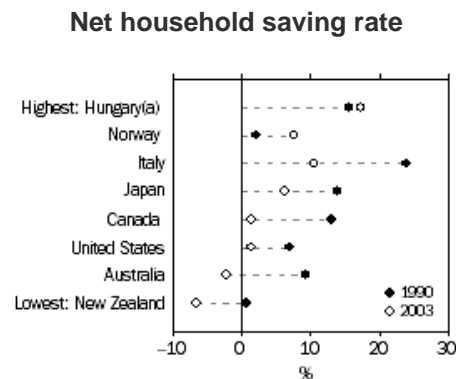
NATIONAL INCOME - HOUSEHOLD SAVING

Household saving is one of the main sources of funds within a country to finance investment, and hence, to promote long-term growth in increased national disposable income per capita. An international comparison for a related indicator, Gross National Income per capita is presented in the *National income* commentary on page 64.

Household saving and investment represents the wealth accumulated by households, which is a component of national wealth.

Household saving is also important at the individual or family level. Saving for retirement recognises that income levels fluctuate over the life cycle, and that provision needs to be made for the time after an individual retires from the labour market. The wealth households have accumulated through saving and investment represents the wealth that can be used to generate future income and support future consumption.

Household saving is the component of household disposable income that is not consumed. The household saving rate is household saving divided by household disposable income. Household saving rates can be calculated as either a gross saving rate or net saving rate (see definitions of gross and net saving in the *National income* commentary on page 63). Many OECD countries, including Australia, calculate household saving on a net basis. The net household saving rate is the measure presented in this essay, and hence countries using gross saving rates such as the United Kingdom, Belgium and Sweden have been excluded from this analysis.



(a) Data are for 1995, not 1990.

Source: [OECD Factbook 2005](#).⁴

In 2003, Australia experienced a household saving rate of -2.2%. This negative saving rate was the result of both a slow down in the rate of growth of disposable income and the continued strength of household final consumption expenditure.¹¹ In 2003, New Zealand also experienced negative household saving or dissaving (-6.5%), making it the lowest household saving rate of all OECD countries. In 2003, Hungary had the highest household saving rate of all OECD countries, with 17.3% of household disposable income being saved.

Many OECD countries experienced a decline in household saving during the period 1990–2003. Australia, Canada, the United States, New Zealand and Finland all experienced sharp declines in household saving rates. Australia's household saving rate of -2.2% reflects a decline from 9.3% in 1990. However, in understanding the fall in Australia's household saving it is important to consider changes in the value of assets held by households.¹¹

Norway experienced the strongest growth in the household saving rate during the period 1990–2003, with household saving increasing from 2.2% to 7.6% of disposable household income during this period.

Factors that may influence the household saving rate include the legal and administrative arrangements within a country and the demographic characteristics of the population. The extent to which governments fund old-age pensions and provide insurance against unemployment and sickness may also influence the level of household saving.

The age composition of the population can influence the level of household saving. An ageing population may be accompanied by lower household saving rates as older people tend to run down the financial assets that they have accumulated during their working life.⁴ Countries with an ageing population and low fertility rates also experience a slow down in the rate of household formation, meaning less growth in the number of households to contribute to the household saving of a country. The purchase of household durables (such as washing machines, refrigerators etc), which households may consider to be an investment can also influence the level of household saving.¹²

NATIONAL INCOME - POPULATION IN WORK

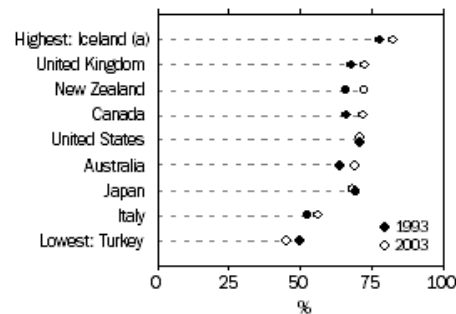
The proportion of the working age population (aged 15–64) who are employed provides information on the ability of the economy to create jobs.¹³ The size of the economically active population is also one of the determinants of economic growth. A limitation of this indicator is that it does not take into account those in employment who are older than the age that has traditionally been considered working age.

A high ratio means that a large proportion of the working age population is employed, while a low ratio means that a large share of the working age population are not directly involved in productive market activities, because they are either unemployed or more likely not in the labour force. This is the pool of people who potentially can be targeted by labour market policies to increase employment and participation. While a high employment to working age population ratio is generally considered positive, the indicator alone does not provide information on labour market issues such as under employment, earnings and working conditions.¹³

The employment to working age population ratio is influenced in the short term by business cycles and the level of unemployment. Higher unemployment, all other things equal, will tend to decrease the employment to working age population ratio. An international comparison for unemployment rate is presented in the *Work* commentary on page 52.

However in the longer term, the population of working age people who are employed is affected by policies in areas such as higher education, income support, and policies that facilitate the employment of women.⁴

Employment to working-age population ratio



(a) Data are for 2002 not for 2003.

Source: [OECD Factbook 2005](#).⁴

In 2003, Australia's employment to working age population ratio was 69%, above the OECD average of 65%. Iceland was the OECD country with the highest employment to working age population ratio in 2003, with 83% of the working age population in employment, followed by Switzerland with 78%. Along with Iceland, most of the other Nordic countries had relatively high ratios in 2003: Norway (76%), Denmark (75%), and Sweden (74%). This is due in part to the continuing high level of participation of women in paid employment in these countries.

Turkey had the lowest employment to working age population ratio (46%), followed by Poland (51%). High unemployment in Poland in recent years, attributed to rationalisation of the economy, relatively slow development of the services sector, and the level of labour market regulation, is likely to have contributed to the low ratio in that country.¹⁴ In Turkey, participation of both men and women in paid work has been declining. This, in combination with the continuing low proportion of women in paid work (25%), are factors likely to have contributed to the low ratio.

The employment to working age population ratio increased in the majority of OECD countries during the period between 1993 and 2003, along with economic growth. For further information on economic growth, see the international comparisons of change in GDP, and gross national income in the *National income* commentary on page 64.

In Australia, the employment to working age population ratio increased from 64% to 69% between 1993 and 2003. This increase was driven by increasing female participation in paid work, with male participation in paid

work actually declining during this period.

The largest increases in the ratio occurred in Spain, Ireland and the Netherlands. The employment to working age population ratio in Spain increased from 48% to 61%, in Ireland from 51% in 1993 to 65% in 2003, in and from 64% to 73% in the Netherlands. The increases in these countries were driven by substantial growth in the proportion of women in paid employment, and also in Ireland by substantial economic growth over this period.

Substantial decreases in the employment to working age population ratio occurred in Poland and Turkey during the period between 1993 and 2003. In Turkey the decline was from 50% to 46% , while in Poland from 59% to 51%.

BIODIVERSITY - PROTECTED AREAS

Conservation of biodiversity is considered an integral part of sustainable development. Many are concerned about the impact of human activities on biodiversity. Human activities impact on biodiversity in ways such as habitat alteration, pollution, introduction of exotic species, commercial use of wildlife resources, degradation of ecosystems, loss of habitat, and the extinction of plant and animal species.¹⁵

Protected areas are a cornerstone of national biodiversity conservation strategies. They provide safe havens for the protection of plant and animal species. Protected areas also help to preserve genetic diversity of species, and preserve ecosystems, and in doing so help ensure the survival of the world's natural heritage. They also maintain vital ecosystem functions such as the regulation and purification of water flow. Protected areas are also important sites for scientific research and conserving biodiversity.

Protected areas provide places for indigenous human communities to continue traditional lifestyles. They provide protection for sacred sites, and are places for tourism, recreation and education. They are believed to act as natural buffers against climate change through the uptake and storage of carbon by forests.

Protected areas

The protected areas indicator is expressed as the proportion of land territory that is in protected areas. The proportion of land territory in strict nature reserves, wilderness reserves and national parks is also presented.

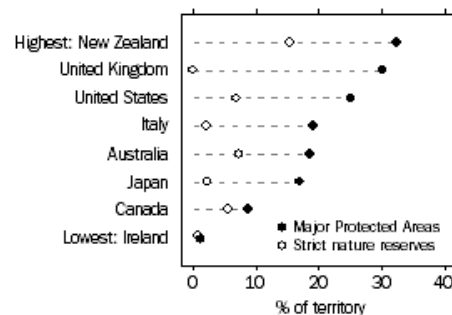
The World Conservation Union (IUCN) defines a protected area as "an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means." The IUCN provides six categories of protected areas according to the management regime of the area, ranging from a strict nature reserve where limited access is available to scientists only, to a managed resource protection area, which is managed for the sustainable use of natural ecosystems.¹⁶

Sea territory in protected areas is not included in this indicator. Globally less than 1% of marine environment is included in protected areas. Australia's Great Barrier Reef is one of two sites that accounts for a third of the global area of the marine environment in reserves. Marine protected areas help provide fish breeding grounds and maintain fisheries.¹⁶

Protected areas are set up with the conservation of species as one of the primary objectives. Therefore the proportion of a territory that is in protected areas reflects political and societal commitment to biodiversity conservation.¹⁷ However, the proportion of territory in reserves has limitations as an indicator of biodiversity conservation. The proportion alone does not tell us what range of ecosystems and habitats are being preserved in protected areas.

Changes over time in the number of extinct, endangered and threatened mammal and bird species is indicative of how well the strategies for the conservation of biodiversity, of which protected areas are a key part, are operating. International comparisons of threatened mammal species and threatened bird species is presented in *The natural landscape – biodiversity* on page 107.

Major protected areas and strict nature reserves^(a) - 2004



(a) Strict nature reserves includes the following IUCN categories Ia: strict nature reserves managed mainly for science, Ib: wilderness areas managed mainly for wilderness protection, and II: national parks managed mainly for ecosystem protection and recreation.

Source: [Environment at a Glance, OECD Environmental Indicators 2005](#).¹⁵

The number and extent of protected areas has increased globally, in almost all OECD countries. While in 1962 there were around 10,000 protected areas, there are now over 100,000.¹⁶ In 2004, there were 5,700 sq km of protected areas in OECD countries accounting for 16% of the total territory of all OECD countries combined.

In 2004, protected areas accounted for 19% of Australian territory. This placed Australia in the top third of OECD countries in terms of area in reserves.

In 2004, New Zealand was the OECD country with the highest proportion of its territory dedicated to protected areas (32%). Other OECD countries with greater than 30% of their territory in protected areas were Germany (32%) and the United Kingdom (30%). Ireland had the lowest proportion of territory dedicated to protected areas (1%). Other countries with less than 5% of territory in protected areas were Belgium (3%) and Turkey (4%).

New Zealand had the highest proportion (15%) of territory in strict nature reserves, wilderness areas and national parks in 2004. There were five other OECD countries with greater than 5% of territory in strict nature

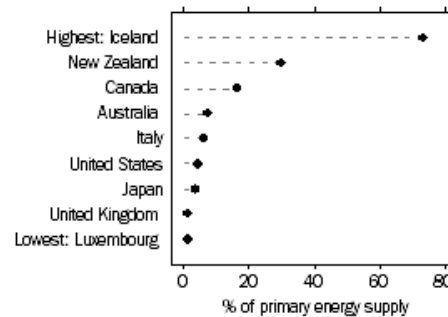
reserves, wilderness areas, and national parks: Sweden (8%), Australia (7%), Slovak republic (7%), United States (7%) and Canada (6%). In contrast, the United Kingdom, Luxembourg, Korea and Belgium did not have any territory in these categories of protected areas.

AIR AND ATMOSPHERE - RENEWABLE ENERGY

Increasing the use of renewable energy sources has the potential to help reduce greenhouse gas emissions. Australia's net greenhouse gas emissions are the headline indicator for *The air and atmosphere*. An international comparison for a related indicator, net greenhouse gas emissions is presented on page 137.

Governments around the world are recognising the importance of sustainable development and combating climate change when designing their energy policies.⁴ The use of renewable energy is part of energy policy responses to address climate change in many countries. Renewable energy includes wind, solar, hydro, geothermal, tide and wave. It also includes energy derived from biomass and from the combustion of industrial and municipal waste. In the 26 OECD countries that are members of the International Energy Agency, combustible renewables and waste, and hydropower currently represent the bulk of renewable energy supply.¹⁶

Renewable energy as a proportion of primary energy supply - 2003



Source: [OECD Factbook 2005](#).⁴

In 2003, 8% of Australia's primary energy supply came from renewable energy sources, above the OECD country average of 6%. Australia has vast reserves of low-cost energy resources and is a major energy exporter, particularly of coal.¹⁸

Primary energy supply in Australia is dominated by fossil fuels, with coal accounting for nearly half of total primary energy supply. Given this, the Australian government has determined that the development of low emissions technologies such as “clean coal” will be a central focus of climate change policy in Australia.¹⁹

Around three quarters of renewable energy used in Australia comes from biomass, with hydropower accounting for most of the remainder. There is also a small contribution from wind power and solar.¹⁸ Australia has set a mandatory target of generating an additional 9,500 giga watt hours (GWh) of electricity per

year from renewable sources by 2010. This is enough power to satisfy the residential electricity needs of 4 million people. There are a variety of government programmes that provide support for renewable energy innovation, development and commercialisation.²⁰

In 2003, 73% of Iceland's total primary energy supply came from renewable energy sources (primarily geothermal), the highest proportion of all OECD countries. This was markedly higher than the next highest proportions of primary energy supply – in Norway (44%) and New Zealand (30%). The share of renewable energy supply in total primary energy supply is strongly linked to a country's resource endowments. It is also determined by technology development, policy choices and private sector investment. In Norway there are abundant hydropower resources that provide almost all of its electricity generation, and represent the bulk of renewable energy sources in Norway. However, there is also interest in expanding the use of wind power and heat from biomass. In New Zealand there are abundant geothermal and hydropower resources and these account for the bulk of renewable energy, together with some use of biomass.¹⁸

In 2003, there were eleven OECD countries where the source of 10% or more of total primary energy supply was from renewable energy. This was unchanged from nearly a decade earlier in 1994.

There were seven OECD countries where in 2003 less than 2% of total primary energy supply came from renewable sources (Hungary, Belgium, Ireland, Korea, Netherlands, the United Kingdom and Luxembourg). Total primary energy supply in these countries is also dominated by fossil fuels. Nuclear energy also plays a part in fulfilling energy needs in all of these countries (with the exception of Ireland and Luxembourg), particularly so in Belgium, Hungary, and Korea.¹⁵

However, around half of OECD countries experienced an increase in the proportion of their energy supply coming from renewable energy between 1994 and 2003. In some of these countries the increase was relatively small, or was from a small base. Australia increased use of renewable energy from 6% of primary energy in to 8% over this period.

Some OECD countries that were already making considerable use of renewable energy sources in 1994 increased their use of renewable energy in the period from 1994 to 2003. During this period Iceland increased its use of renewable energy from 66% to 73%, Sweden from 23% to 26%, and Finland from 19% to 22%. Denmark experienced a marked increase in renewable energy use over this period, from 8% of primary energy supply to 13%.

ENVIRONMENT - MUNICIPAL WASTE

Waste is generated at all stages of human activities. The volume of waste that a society produces is an indicator of resource use and of the by-products of consumption, and is determined by production and consumption patterns. The potential impacts from inappropriate waste management on human health and the environment (soil and water contamination, air quality, land use, landscape amenity, greenhouse gas emissions from landfill) are major concerns.⁸

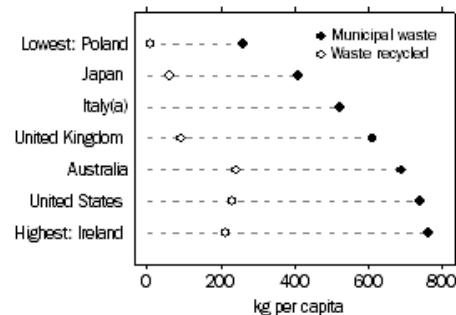
Increasing waste generation challenges the capacity of current facilities to cope, and creates pressure for land on which to locate new waste disposal facilities. The location and social acceptance of new facilities, such as landfills, is also an issue. There is a recognition that waste minimisation through changes in consumption

patterns and waste prevention, reuse, recycling and recovery, is an element of sustainable development and policy responses have focussed on strategies in these areas.

Municipal waste

The municipal waste indicator is expressed as municipal waste generated (kg/capita) per year and the amount of this waste that is recycled. Municipal waste is waste collected by or on the order of municipalities. It includes waste that originates from households, commercial activities, office buildings, institutions such as schools and government buildings, and small businesses that dispose of waste at the same facilities used for municipally collected waste.⁸

Municipal waste per capita - 2003



(a) No data are available for waste recycled.

Source: [Environment at a Glance, OECD Environmental Indicators 2005](#).¹⁵

In 2003, Australia had the fifth highest rate of per capita municipal solid waste generation among OECD countries with 690kg per capita. This is partly because technologies and processes to avoid, reduce and recover waste are generally not used as extensively in Australia as in some other OECD countries.¹⁹

In 2003, the OECD country with the highest per capita generation of municipal solid waste was Ireland, producing 760kg of waste per capita. The United States and Iceland had the next highest rates of per capita municipal waste generation with 740kg and 730kg respectively. The OECD country with the lowest per capita municipal solid waste generation was Poland with 260kg per capita. The Czech Republic and Slovak Republic were the next lowest generators of municipal solid waste, with 280kg per capita and 300kg per capita respectively. Data for 2003 shows that the OECD countries with relatively high levels of consumption also had relatively high levels of municipal waste generation.

For the 20 OECD countries for which data exists on the change in municipal solid waste generation between 1990 and 2003, all but four countries recorded increases in municipal solid waste generation per capita. The largest increases were in Ireland and Spain, which recorded increases of 76% and 53% respectively, compared with the levels of municipal solid waste in 1990. Municipal solid waste generation intensity per capita has risen mostly in line with private final consumption expenditure and GDP, although a slight slow down has been observed in recent years.¹⁵

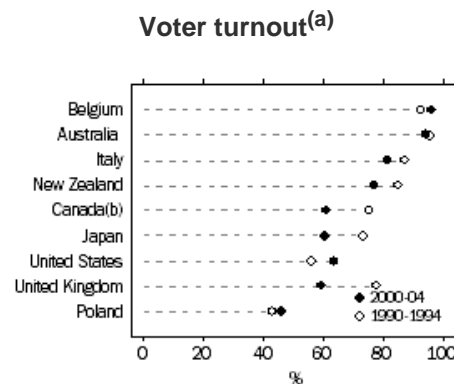
Recycling, incineration and energy recovery from waste are becoming more commonly utilised in a number of OECD countries. Nine European OECD countries and Japan now dispose of less than 30% of their waste to landfill, with Switzerland and Japan sending only 1% and 5% of their waste to landfill respectively. In Japan it has been a government priority to minimise the generation of waste and reduce landfilling, by means of recycling and combustion to generate electricity.²²

In 2003, Australia ranked tenth in terms of the proportion of municipal solid waste that is recycled, with 35% of waste being recycled. Four OECD countries recycle more than half of their municipal solid waste, Austria (61%), Belgium (60%), Germany (56%) and the Netherlands (56%). The relatively high cost of landfill in Europe, the prohibition of biodegradable and combustible material from landfill and renewable energy targets are factors likely to have encouraged greater use of recycling and energy recovery from waste.²¹

GOVERNANCE, DEMOCRACY AND CITIZENSHIP - VOTER TURNOUT

In most developed democratic countries there is concern about increasing public alienation from politics.^{22, 23} Voter turnout rates are one easily quantifiable measure of political participation of the population. Voter turnout can be considered as an indicator of the extent to which citizens are a part of the political process, and the confidence the population has in, and importance they attach to, political institutions. However, higher or lower rates of voter turnout do not necessarily correlate with the characteristics or extent of democracy within a particular country.

There are a couple of methods by which the voter turnout rate can be expressed. Voter turnout can be expressed as the number of votes cast divided by the number of registered voters for a parliamentary election. It is also possible to express the indicator as the number of votes cast as a proportion of the voting age population. The Australian Electoral Commission measures voter turnout as votes cast as a proportion of registered voters and this measure is used in this essay. The voter turnout indicator refers to turnout for national parliamentary elections.



a) Electoral terms and election timetables vary between countries. The data presented for voter turnout is for the most recent national parliamentary election held in a country, for which data is available, and the election held as close to 10 years before that.

(b) Earlier data are for 1988.

In the most recent Australian Federal parliamentary elections of 2004, voter turnout was 94%, the second highest of all OECD countries. However, this was slightly lower than the voter turnout of 96% in the 1993 parliamentary election.

Belgium currently has the highest voter turnout rate of all OECD countries with 96% of registered voters casting a vote in the parliamentary elections of 2003. The lowest turnout was recorded in Poland with 46% of registered voters voting in the parliamentary elections of 2001.

The compulsory or voluntary nature of voting in different countries is one factor that may influence voter turnout. Belgium and Australia are countries with long histories of compulsory voting, with compulsory voting introduced in 1892 in Belgium and 1924 in Australia. Australia and Belgium are also two of a small number of countries that have strict enforcement of compulsory voting. A strong association has been demonstrated between the level of enforcement of compulsory voting and voter turnout.²⁵ This is likely to be a contributing influence to consistently high voter turnout in Australia and Belgium over time.

High levels of political freedom and civil liberties are also considered to be factors that may contribute to the level of voter turnout.²⁷

Most OECD countries have experienced a decline in voter turnout in elections held over the past decade or so. The largest declines in voter turnout occurred in the Czech Republic, Korea and United Kingdom. Voter turnout in the Czech Republic declined from 85% in 1992 to 58% in 2002. Voter turnout in Korea declined between 1988 and 2000 from 76% to 57%, while in the United Kingdom voter turnout between 1991 and 2001 declined from 78% to 59%. The low turnout for the 2001 election in the United Kingdom has been attributed to a number of factors such as the failure of the election campaign to connect with the electorate, a perception on the part of some voters that voting was irrelevant and would not make a difference, and the absence of a co-ordinated national campaign to encourage voting.²⁴

The United States has experienced the largest increase in voter turnout, with turnout increasing from 56% in 1990 to 64% in 2000. A number of other countries have experienced a modest increase in voter turnout during this period. Small increases in voter turnout were recorded in Poland (from 43% in 1991 to 46% in 2001), Denmark (from 83% in 1990 to 87% in 2001) and Belgium (from 93% in 1991 to 96% in 2003).

Among OECD countries are a number of countries which have moved to a democratic system of government relatively recently. The first parliamentary elections were held in Poland in 1989, and in 1990 for the Czech Republic and the Slovak Republic. The voter turnout for the first parliamentary elections in these countries was considerably higher than the turnout in more recent parliamentary elections. Some argue that social conditions, such as high levels of inequality and distrust of political institutions, sometimes observed in newer democracies, can influence electoral participation.²⁸

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[Contents](#)

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[Contents](#) >> Multiple disadvantage

Many aspects of disadvantage go hand in hand. The links, for example, between a poor education and low income are well known, while low income is, in turn, associated with poor health and inferior housing.

The progress indicators within this publication focus on progress at the national, or aggregate level. Although an indicator of progress might have reached a certain level for Australia as a whole, we recognise in the **Some differences within Australia** section of each commentary, that that level might be different among the various subgroups of the population: for example, different groups of people have different average life expectancy, different unemployment rates or different levels of educational attainment. And so, for most progress dimensions, the commentaries shed some light on the relative advantage and disadvantage of some population subgroups.

But, because the commentaries discuss each dimension in turn, they do not include information on the extent to which various sub-groups of the population experience more than one form of disadvantage.

Information on the patterns and incidence of multiple disadvantage in Australia can be important to an understanding of Australia's progress.

Those experiencing multiple disadvantage have poor outcomes across a range of dimensions of life. The effects of several disadvantages acting in tandem can be more difficult to overcome than just a single aspect of disadvantage. And this multiple disadvantage can be perpetuated across generations. Multiple disadvantage can also lead to exclusion from society (see box opposite) and a lack of access to goods, services, activities and resources.

This article discusses multiple disadvantage in Australia. It begins by comparing levels of disadvantage across a range of areas of concern for different population subgroups - men and women of different ages; different household types; and people in different states and territories or remote and non-remote areas.

It goes on to examine the associations between disadvantage in one dimension and disadvantage in another: to what extent, for example, is a low level of education associated with a high level of unemployment, and do the associations differ in different subgroups of the population?

It ends by considering how patterns of multiple disadvantage affect different subgroups, and examines the characteristics of places in Australia that experience relatively high levels of disadvantage across a range of key areas.

Measuring disadvantage

Whether or not someone is disadvantaged in an aspect of life depends on a range of circumstances, and there are no absolute definitions of disadvantage in any area with which everyone would agree. We focus on people who are disadvantaged relative to others, not, necessarily, people experiencing absolute disadvantage. We have chosen measures that, where possible, are tied closely to the headline indicators in

Measures of Australia's Progress:

- Health: whether someone reported their health to be only fair or poor.
- Education: whether someone was without non-school qualifications.
- Work: whether someone was unemployed.
- Financial hardship: where someone's equivalised gross household income was in the bottom quintile (20%) of incomes.
- Crime - assault and break-in: whether someone was the victim of actual or threatened violence and/or an actual or attempted break-in during the previous 12 months.
- Family and community: whether someone felt that, in a time of crisis, they were unable to get support from someone outside their household.

There are, of course, other ways in which disadvantage might be measured or characterised including looking at things like proficiency in English, poor housing, family breakdown and transport difficulties.

Social exclusion

Around the world, researchers are becoming increasingly interested in the concept of **social exclusion**.¹ Social exclusion is a form of social disadvantage encompassing economic and non-economic factors. Excluded individuals and groups are separated from institutions and wider society, and consequently from both rights and duties.²

The General Social Survey

In 2002, the ABS undertook a General Social Survey (GSS).³ The GSS asked a series of questions designed to capture key dimensions of social and economic outcomes for households and individuals. Demographic characteristics include age, sex and marital status. Social outcomes include health, education, crime and family and community support. Economic outcomes include income, wealth and financial stress.

The GSS was designed to support analyses of the linkages between the various dimensions of a person's social and economic outcomes. Unlike other ABS surveys (such as the National Health Survey or the Survey of Income and Housing Costs) which concentrate on one or two specific 'areas of social concern', the GSS was designed to capture information across a range of areas. It is, therefore, a particularly useful data set if one wants to investigate multiple disadvantage. Much of the information in this article comes from the GSS.

Different surveys can yield different results and some of the estimates from the GSS - the crime victimisation rates for example - differ from

	Disadvantage by household type					
	Health	Education and training	Work	Crime	Financial hardship	Family and community
	Fair/poor health	Without a non-school qualification	Unemployed	Victim of break-in or violence	Lowest income quintile	Unable to get support in time of crisis
Household composition (selected categories)	%	%	%	%	%	%
Couple only household, one family						
Person aged under 35	6.8	31.3	3.8	19.2	3.6	*3.3
Person aged 35-64	18.7	47.8	2.2	14.3	19.4	6.6
Person aged 65 or over	32.4	62.6	..	7.5	44.9	6.3
One family household with dependent children						
Couple household	8.0	45.1	3.8	18.7	11.8	5.0
Lone parent	15.7	55.5	7.5	33.1	39.6	5.5
Lone person household						
Man aged under 35	7.6	41.4	7.2	35.8	21.5	*4.5
Woman aged under 35	9.4	39.0	*6.2	31.4	21.2	*1.9
Man aged 35-64	25.3	46.0	7.2	25.6	32.9	11.2
Woman aged 35-64	26.4	50.1	4.2	21.0	43.0	3.8
Man aged 65 or over	34.3	60.8	..	13.2	59.4	7.7
Woman aged 65 or over	34.8	79.9	..	8.8	69.3	4.7
Person aged under 35	8.3	40.5	6.8	34.1	21.4	*3.5
Person aged 35-64	25.8	47.9	5.8	23.5	37.5	7.8
Person aged 65 or over	34.6	73.9	..	10.2	66.1	5.6
All people	15.9	50.0	3.9	18.3	19.6	6.0

* estimate has a relative standard error of between 25% and 50% and should be used with caution.

Source: Data available on request, General Social Survey.

Disadvantage among different subgroups

In 2002, the ABS General Social Survey (GSS) asked a series of questions about people's social and economic outcomes. We focus here on several areas that are also headline dimensions of progress - health, education and training, work, financial hardship, crime, and family and community. And we examine the extent to which various subgroups in the population experience relatively poor outcomes in these areas. We examine subgroups defined by their age and sex; their living arrangements; and where they live. A one page box discusses disadvantage among Australia's Aboriginal and Torres Strait Islander peoples.

Couples and people living alone

There were considerable differences in patterns of disadvantage among the different households set out in the table above.

In 2002, people living with a partner (of any age) but no children were less likely to experience many aspects of disadvantage than people in the same age group who were living alone. For instance, among those aged 18-34, some 31% of people living in a couple only household were without a non-school qualification, compared to 41% of people in the same age group and living alone; 4% were unemployed (compared to 7%); 19% had been the victim of an assault or break-in (compared to 34%); and only 4% had equivalised household income in the bottom quintile (compared to 21%).

In the 35-64 age group, 26% of people living alone were in fair or poor health, compared to 19% of their counterparts living in couple-only relationships. People in this age group and living alone also reported higher unemployment (6%) and were more likely to have been the victim of an assault or break-in (24%) than their counterparts in a couple only relationship, 2% of whom reported being unemployed and 14% of whom reported being the victim of a crime. People in this age group living alone were nearly twice as likely to have equivalised income in the bottom quintile as those living in a couple only relationship (37.5% and 19.4%). There was, however, little difference in educational attainment between the two groups.

Among people older than 64, there were fewer large differences between those living alone and those living in couple only relationships. The largest differences for this age group were in the proportions of people without post-school qualifications and with low income. About 74% of people older than 64 and living alone were without a non-school qualification and 66% had equivalised income in the bottom quintile. The figures stood at 63% and 45%, respectively, of people older than 64 who were living in a couple only relationship.

Men living alone were less likely to have support in a time of crisis than either their female counterparts or people in the same age group living in a couple relationship. Lack of support was most prevalent among men aged 35-64 and living alone: 11% of them felt they would not have support from outside their household.

Families with dependent children: couples and lone parents

Differences in disadvantage between couple and one parent families with dependent children were noticeable in 2002, with couple families less likely to experience disadvantage in any area.

People living in a couple family were about half as likely to be in fair or poor health as single parents were; and while 45% of people in couple families reported not having a non-school qualification, this rose to 55% among lone parents. Unemployment among lone parents was twice as high as among couple families, which made a small contribution to the large difference between the two groups in the proportions of people with a relatively low income: about 12% of people in couple families reported an equivalised household income in the bottom 20%,

compared to about 40% of lone parents. Lone parents were almost twice as likely to have been the victim of an assault or break-in than people in a couple family (33.1% and 18.7%).

Men and women living alone

Differences in the prevalence of disadvantage between men and women who live alone are also shown in the table.

In all three age groups, there were only small differences in the proportions of men and women living alone who reported fair or poor health.

In recent years the proportion of women taking qualifications outside school has increased and this is reflected in the data here. Younger women living alone (those aged 18-34) were a little more likely to have a non-school qualification than their male counterparts. But the pattern changed in older age groups, with men aged 35-64 a little more likely to have a non-school qualification. Among older people (those aged 65 and over) the difference was quite substantial: about 40% of men older than 64 and living alone had a non-school qualification, compared to only 20% of women.

The chance of being a victim of crime decreased as people got older, but, regardless of age, men living alone reported a crime victimisation rate about four and a half percentage points higher than women living alone.

There was little difference in the proportions of men and women younger than 35 and living alone who had income in the bottom quintile. But in older age groups, the proportions of women reporting equivalised income in the bottom quintile were about 10 percentage points higher than the proportion of men who reported low income.

Men living alone were less likely than women living alone to have support in a time of crisis. The difference was most marked among those aged 35-64 where 11% of men and 4% of women felt they would not have support.

Disadvantage and location

Differences in patterns of disadvantage according to the remoteness of the areas in which people live are influenced by many factors. Those living in more remote areas tended to experience a higher rate of fair or poor health, a greater tendency to be without a non-school qualification, a higher unemployment rate and were more likely to have income in the bottom quintile. But people living in more remote Australia reported lower rates of crime victimisation than other Australians.

Disadvantage by remoteness						
	Health	Education and training	Work	Crime	Financial hardship	Family and community
	Fair/poor health	Without a non-school qualification	Unemployed	Victim of break-in or violence	Lowest income quintile	Unable to get support in time of crisis
	%	%	%	%	%	%

Major cities	14.9	47.8	3.6	18.9	17.4	6.0
Inner regional	17.6	52.4	4.4	17.6	22.9	5.7
Outer regional, remote and very remote	19.0	58.2	5.0	15.8	26.7	6.4
Australia	15.9	50.0	3.9	18.3	19.6	6.0

Source: Data available on request, General Social Survey.

Associations between dimensions of disadvantage

Many aspects of disadvantage are associated with one another. This section investigates the links between some key areas of disadvantage by describing the associations between poor self-assessed health, absence of a non-school qualification, low income, an inability to get support in a time of crisis, unemployment, and whether someone had been the victim of a crime (the six dimensions of disadvantage considered in the previous section). Although we discuss the associations between areas it is not possible to postulate a causal relationship. For example, while there may be an association between poor health and low income, it is impossible to ascertain from the GSS data whether poor health leads to low income or **vice versa**.

Health

Across the entire population, about 16% of people reported their health as fair or poor and about 25% reported excellent health. People who reported their health as fair or poor were generally more likely to experience other aspects of disadvantage.

- People of all ages in fair or poor health were much less likely to have a non-school qualification, with rates of attainment in the region of 20 percentage points lower than those in excellent health. They were also more likely to have been the victim of an assault or break-in (the difference was most marked among those aged 18-34, where victimisation rates for assaults and break-ins were more than double the rate among people in excellent health). And they were more likely to have income in the lowest 20% of all incomes (the difference was most marked among people aged 35-64).
- People under 65 in fair or poor health were less likely to feel they could get support in a time of crisis than those in excellent health.
- Younger people (aged 18-34) in fair or poor health were nearly three times more likely to be unemployed.

Health: Self-assessed health status and disadvantage

Disadvantage	Self-assessed health status by age					
	Excellent			Fair/poor		
	18-34 years %	35-64 years %	65+ years %	18-34 years %	35-64 years %	65+ years %
Without a non-school qualification	44.6	36.3	59.2	63.0	58.6	77.2
Unemployed	4.6	2.8	. .	12.9	3.4	. .
Victim of assault or break in	17.8	16.1	5.5	40.2	22.5	10.9
Unable to get support in time of	2.9	5.4	11.7	10.0	11.7	8.6

crisis						
Lowest income quintile	9.4	9.1	36.6	26.2	35.4	51.3

Source: Data available on request, General Social Survey.

Aboriginal and Torres Strait Islander Peoples

Indigenous Australians are disadvantaged across many areas of social concern relative to non-Indigenous people, and this disadvantage is highlighted elsewhere in this publication (see, for example, the commentaries **Health, Financial hardship, Work, Education and training, and Housing**). When compared with the non-Indigenous population, the Indigenous population has on average: lower life expectancy, lower income, lower educational attainment, lower labour force participation, and lower levels of home ownership. And Aboriginal and Torres Strait Islander peoples are more likely to commit suicide, be the victim of crime (including homicide) or to be in prison.

For Indigenous Australians there is evidence of greater socioeconomic disadvantage with increasing geographic remoteness. According to the 2001 Census, Indigenous Australians in remote areas have lower rates of educational attendance and labour force participation than those who live in major cities or regional areas. They are also more likely to work in low-skilled occupations and to have low incomes.

In 2001, around one in five Indigenous Australians aged 15-64 years had a non-school qualification. Those with a non-school qualification had far better outcomes in labour force participation, occupation and income, than the majority without a qualification. More extensive information on multiple disadvantage will be available from the forthcoming **Indigenous Social Survey** (results due in 2004).

Aboriginal and Torres Strait Islander Peoples: Selected indicators by remoteness

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total	Non-Indigenous
Estimated resident population ('000s)	138.5	93.0	105.9	40.2	81.0	458.5	18,954.7
	%	%	%	%	%	%	%
Proportion (% Indigenous within each area)	1.1	2.3	5.3	12.4	45.4	2.4	
Not attending education aged 15-19 years (% of all 15-19)	41.5	39.8	42.3	54.6	72.5	47.9	23.9
No non-school qualification (% of people aged 15 and over)	66.5	69.4	72.3	74.2	83.4	72.1	55.3
Not in the labour force (% of people aged 15-64)	40.9	46.2	47.3	47.3	51.6	45.9	26.7
Low skill occupations (% of employed)	53.1	58.1	60.5	61.6	72.3	59.8	42.5
Proportion of people in lowest income quintile	35.2	43.5	44.9	46.1	63.2	45.0	19.3

Aboriginal and Torres Strait Islander Peoples, aged 15- 64: Labour force status, occupation and income - by educational attainment

	No non-school qualification			Has non-school qualification			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Labour force	%	%	%	%	%	%	%	%	%
Employed, not CDEP	33.9	26.6	30.0	67.6	61.9	64.8	38.9	32.4	35.6
Employed CDEP(a)	11.6	6.7	9.0	4.4	3.1	3.8	9.5	5.9	7.7
Unemployed	14.8	8.4	11.4	11.5	8.3	10.0	13.6	8.2	10.8
Not in the labour force	39.7	58.3	49.6	16.5	26.7	21.5	37.9	53.5	45.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
People ('000s)	80.3	90.8	171.1	22.0	20.8	42.8	115.5	122.1	237.6
Occupation skill level	%	%	%	%	%	%	%	%	%
High skill	8.4	10.6	9.4	23.8	36.5	29.6	13.0	18.5	15.5
Medium skill	18.6	14.9	16.9	41.4	22.4	32.7	25.4	17.1	21.6
Low skill	73.0	74.5	73.7	34.8	41.1	37.7	61.6	64.3	62.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
People (000s)	36.2	30.0	66.2	15.8	13.4	29.2	54.3	45.3	99.6
Income	\$	\$	\$	\$	\$	\$	\$	\$	\$
Median equivalised gross weekly income	341.0	328.0	334.0	502.0	488.0	495.0	350.0	343.0	346.0

(a) The Community Development Employment Project.

Source: Data available on request, Census of Population and Housing 2001.

Education and training: Educational attainment and disadvantage, by age

	Degree holders			Without a non-school qualification		
	18-34 years	35-64 years	65+ years	18-34 years	35-64 years	65+ years
Disadvantage	%	%	%	%	%	%
Fair/poor health	5.1	11.9	23.3	9.0	20.4	40.6
Unemployed	5.4	2.6	..	8.8	3.6	..
Victim of assault or break-in	22.4	19.3	9.4	25.2	16.0	7.8
Unable to get support in time of crisis	3.8	6.1	7.4	3.7	7.7	7.9
Lowest income quintile	7.8	10.6	32.2	13.9	21.3	46.9

Source: Data available on request, General Social Survey.

Education and training

People with degrees reported lower levels of disadvantage in all areas (aside from crime victimisation) than their counterparts without a non-school qualification.

- Those without a non-school qualification were more likely to be unemployed, with unemployment rates three percentage points lower among 18-34 year olds with degrees than among 18-34 year olds without a non-school qualification.
- Those without a non-school qualification were 70%-75% more likely to be in fair or poor health than their degree-qualified counterparts, and much more likely to have income in the bottom 20% of all incomes. For example, 11% of degree holders aged 35-64, reported income in the lowest quintile. The figure rises to 21% of people without a non-school qualification in that age range.
- There was no marked difference in the proportions of people with degrees or without a non-school qualification who reported being the victim of a crime or unable to get support.

Work

Whether or not people are unemployed, or participate in the labour force is mainly seen as an aspect of disadvantage for those younger than 65. And so the figures here focus on that age group.

Being unemployed or out of the labour force was associated with increased reporting of poor health, and absence of a non-school qualification, with those outside the labour force most likely to experience disadvantage. Those outside the labour force were more likely than the unemployed to be in fair or poor health. And, in turn, the unemployed were more likely to experience fair or poor health than the employed.

- Reporting rates for poor or fair health were highest among 35-64 year olds outside the labour force (38%) compared to 8.5% of employed people in that age range.
- People with jobs were much more likely than others to have a non-school qualification, and the unemployed were rather more likely than those outside the labour force to have such a qualification.

Work: Labour force status and disadvantage, by age

Disadvantage	Labour force status					
	Employed		Unemployed		Not in the labour force	
	18-34 years %	35-64 years %	18-34 years %	35-64 years %	18-34 years %	35-64 years %
Fair/poor health	4.8	8.5	12.9	17.3	14.5	38.0
Without a non-school qualification	44.4	39.4	61.2	53.0	65.1	62.6
Victim of assault or break-in	23.1	18.5	28.6	21.6	24.3	15.3
Unable to get support in time of crisis	2.8	5.7	5.1	14.6	7.7	9.5
Lowest income quintile	4.8	5.8	29.7	59.0	29.7	39.6

Source: Data available on request, General Social Survey.

Financial hardship: Household income and disadvantage, by age

Disadvantage	Gross equivalised household income quintile					
	Highest quintile			Lowest quintile		
	18-34 years %	35-64 years %	65+ years %	18-34 years %	35-64 years %	65+ years %
Fair/poor health	4.7	8.7	19.4	17.0	36.2	42.8
Without non-school qualification	35.7	33.6	47.2	63.0	62.5	74.5
Unemployed	2.6	1.0	..	19.2	11.7	..
Victim of assault or break-in	22.6	18.4	11.1	29.0	19.3	8.7
Unable to get support in time of	3.4	5.0	5.8	8.3	13.1	7.4

Source: Data available on request, General Social Survey.

- Crime victimisation rates, however, were higher among the unemployed than other groups, although once again the employed were least likely to experience disadvantage.
- The employed were, as one would expect, much less likely to have low incomes.

Financial hardship

Although we would ideally like to consider data about people in financial hardship, such data are unavailable (see box) and so we focus on people with low incomes, some of whom experience financial hardship.

There were some noticeable differences in rates of disadvantage between those with high and low incomes.

- People with income in the bottom quintile were much more likely to be in low health than those in the top quintile. Reported rates of poor or fair health were about four times higher among people on low incomes, than those on high incomes, in the 18-65 age range.
- People of all ages on low incomes were much less likely to have a non-school qualification, with rates about 30 percentage points lower than among those in the top income range.
- Crime victimisation rates were higher among 18-34 year olds in the bottom income quintile than in the top quintile, were similar for 35-64 year olds and lower for those 65 and over.
- Unemployment was, as one would expect, much more prevalent among people on the lowest income.
- About 13% of 35-64 year olds in the lowest income quintile felt unable to seek support in a time of crisis, compared to only 5% of those in the top quintile.

Financial hardship and the bottom income quintile

The bottom quintile is not necessarily a good indicator of financial hardship for all households. It includes those who may temporarily have a low income (e.g. self-employed) but whose expenditure patterns are similar to those on higher incomes; it includes other households who may be 'asset rich, income poor' with expenditure patterns similar to those on higher incomes, and it includes households (such as those with older people) whose expenditure needs may be supported by their income even though that income may be relatively low. There will, therefore, be people in this quintile who are not in financial hardship. Conversely, there may be people in other quintiles who are in financial hardship.

One, two and three aspects of disadvantage

This article has examined patterns of, and associations between, aspects of disadvantage. The next table shows patterns of disadvantage among different subgroups by comparing how often people in different groups have one, two or three aspects of disadvantage. The three aspects are:

- Whether someone reported their health as fair or poor.
- Whether someone was the victim of an actual or attempted assault or break-in during the previous 12 months.

- Whether someone was without a non-school qualification.

It is important to remember that people's health is closely related to their age, and educational attainment is lower in older generations.

Almost two-thirds (64%) of people reported at least one of these measures of disadvantage in the GSS, about one-fifth of people reported two of the three measures, while about 2% experienced all three. Groups reporting higher rates of at least one disadvantage include people older than 64, people in the bottom income quintile, lone parents and the unemployed (more than 70% of each group reported experiencing at least one measure).

Multiple disadvantage prevalence rates, selected population subgroups

		Percentage who experience			Relative disadvantage: Fair/poor health; victim of assault or break-in; no non-school qualifications
Selected population subgroup		One disadvantage %	Two disadvantages %	All three disadvantages %	
Family/household type	Couple only: person aged under 35	47.3	9.0	1.0	
	Couple only: person aged 65 or over	72.9	27.4	2.2	
	Couple family, with dependent children	58.3	12.3	1.2	
	One parent family, with dependent children	71.8	27.6	5.0	
	Lone person aged under 35	62.4	17.7	2.8	
	Lone person aged 65 or over	83.4	31.3	4.0	
Remoteness area	Does not live in a major city	67.8	19.4	2.5	
Income	Bottom income quintile	80.4	33.6	5.1	
Labour force status	Unemployed	73.6	21.1	3.6	
Family and community	Low social attachment(a)	71.7	24.4	3.5	
Benchmark	Total population	63.8	18.3	2.1	

(a) Having low social attachment is defined, here, as being either unable to ask for small favours, having no support in a time of crisis or having less than weekly contact with friends and family.

Source Data available on request, General Social Survey.

Reports of at least two of the three aspects of disadvantage were most common among people in the bottom income quintile and people older than 64 and living alone, with about one-third of people in each group reporting at least two aspects.

Far fewer people reported experiencing all three aspects of disadvantage, and differences in reporting rates between groups, in absolute terms, was small. But about 5% of people in one parent families and those in the bottom income quintile reported experiencing all three aspects, when the rate overall was 2%.

Multiple disadvantage by area

Using census data, transformed into Indexes of Relative Socio- Economic Advantage and/or Disadvantage (SEIFA), one can examine various aspects of multiple disadvantage.⁵

Health and multiple disadvantage

The links between poor health and other aspects of disadvantage are illustrated by considering the differing prevalence of health conditions in geographic areas grouped according to their level of other aspects of disadvantage. The graphs display information on illnesses from the 2001 National Health Survey.⁶

The data are age standardised to take into account variations in the age profile of the different SEIFA quintiles.

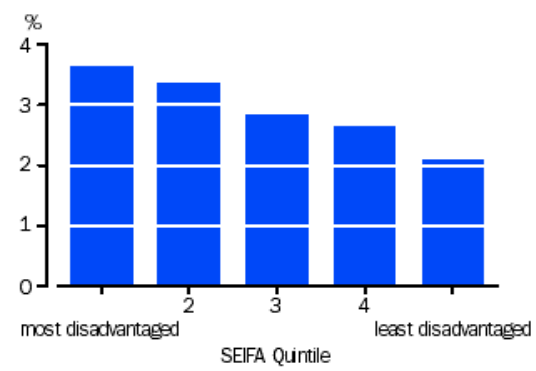
Socio-Economic Indexes For Areas

The Population Census provides information on a broad range of social and economic aspects of the Australian population. Nearly fifty questions of social and economic interest are asked in the census. People using census data are often interested not just in these items taken one at a time, but in an overview or summary of a number of related items. Statistical techniques can be used to provide such summaries and the SEIFA indexes are one type of measure.

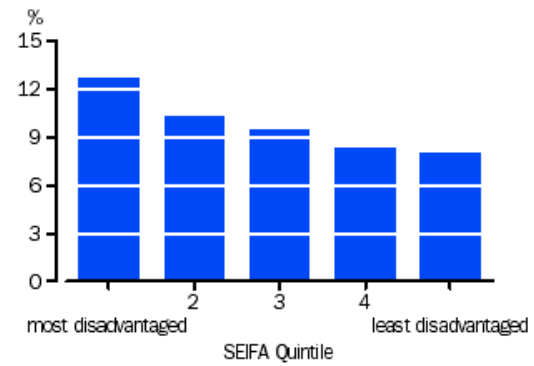
The SEIFA indexes summarise data from the census to provide measures of disadvantage and advantage for an area. Variables summarised in the indexes are measures of socioeconomic status and measures of specific aspects of disadvantage, excluding health. The indexes are used to rank areas in terms of their advantage and disadvantage. For the health analysis in this article we use the Index of Relative Socio-Economic Disadvantage from the 1996 Census. The analysis of Collection District characteristics that follows uses the Index of Relative Socio-Economic Advantage/ Disadvantage from the 2001 Census.

In 2001, Australia was divided into nearly 36,000 Census Collection Districts (CDs).

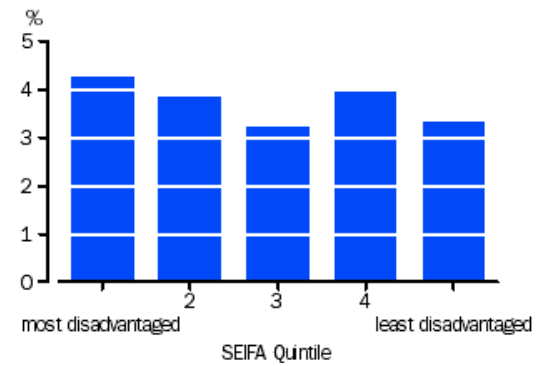
Diabetes and disadvantage



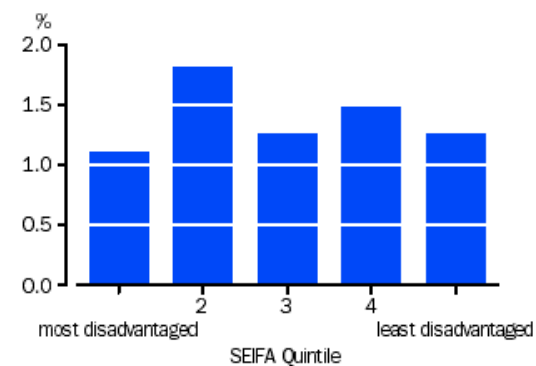
Mental and Behavioural problems and disadvantage



Heart disease and disadvantage



Cancer and disadvantage



Source: Data available on request, National Health Survey 2001.

In each graph, the prevalence of a health condition is shown in each of five SEIFA groups (the SEIFA quintiles from the 1996 Census): each group is made up of areas with a similar level of general relative disadvantage. Areas in the first SEIFA quintile are the most disadvantaged, those in the fifth, the least disadvantaged.

There appears to be an association between disadvantage and both diabetes and mental and behavioural problems, with a higher prevalence of both conditions in more disadvantaged areas.

After adjusting for age differences, diabetes appears to be more common in the most disadvantaged areas than the least disadvantaged areas. The age standardised rate for diabetes is 3.6% of people in the most disadvantaged areas, compared to 2.1% in the least. Mental and behavioural problems were also more prevalent in areas in the first SEIFA quintile than the fifth, with age standardised rates of 12.6% and 7.9% respectively.

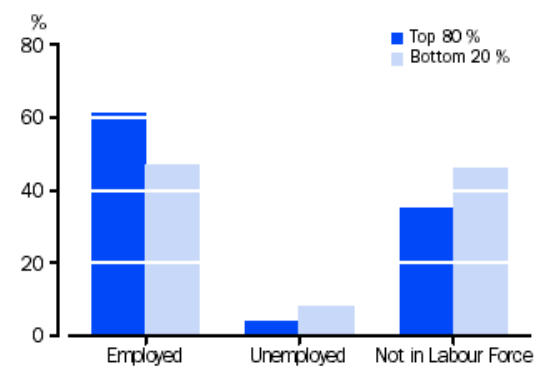
The association between heart disease and disadvantage was less clear cut, although there appeared to be a general tendency for heart disease to decline with reduced disadvantage. At 4.2 per hundred, age-standardised rates of heart disease were almost one-third higher in the most disadvantaged areas compared to the least disadvantaged areas (3.3 per hundred).

These data did not show a strong association between those suffering cancer and disadvantage, although other researchers have found a link between deaths from cancer and SEIFA quintile.⁷

Other characteristics of the advantaged and disadvantaged areas

The following analysis examines characteristics of Australia's more disadvantaged neighbourhoods, and uses data from the 2001 SEIFAs index of advantage/disadvantage. We compare average educational attainment, labour force status, and equivalised household income across SEIFA.

Proportion of people and labour force status, SEIFA(a) top and bottom

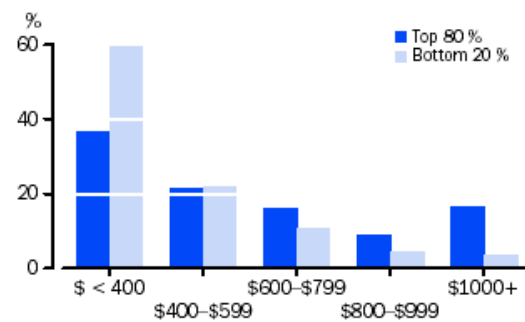


(a) The Socio-Economic Index for Relative Advantage/Disadvantage.
Source: data available on request, SEIFA 2001.

Proportion of people and years of schooling, SEIFA(a) top and bottom

	SEIFA areas	
	Top 80%	Bottom 20%
Years of schooling and educational qualification		
No school	1	2
Year Eight	9	16
Year Nine	8	13
Year Ten	26	32
Year Eleven	11	11
Year Twelve	45	26
Degree	16	5

Proportion of people and equivalised weekly household gross income, SEIFA(a) top and bottom



(a) The Socio-Economic Index for Relative Advantage/Disadvantage.
Source: data available on request, SEIFA 2001.

These figures should be interpreted with caution because SEIFA is calculated by considering, among other things, levels of education, employment and income in an area. And so there will, by definition, be considerable differences in those characteristics among the most advantaged and disadvantaged CDs. This analysis highlights the strength of those differences. Again, the data are age standardised. Those living in areas in the most disadvantaged 20% of CDs were much more likely to be unemployed (8%) than those residing in other areas (4%).

Fewer than half (47%) of those living in the bottom quintile were employed compared to 61% of people elsewhere, while 46% of those living in the bottom quintile were not in the labour force, compared to about a third (35%) of those living elsewhere.

About one-quarter of those living in the most disadvantaged 20% of CDs had a year 12 or equivalent education, while 45% of people living in other areas had completed year 12. Only 5% of those living in the bottom 20% of CDs had a degree compared to 16% of those living elsewhere. Those living in the bottom 20% were about twice as likely never to have gone to school (2% compared to 1%).

Average weekly equivalised household gross income was \$385 for those living in areas in the bottom 20% of CDs. For those living in the remaining 80% of CDs, average weekly equivalised income was \$618. About two-fifths of those living in the top 80% of CDs had weekly equivalised income over \$600, and a quarter of people in those CDs had an income over \$800 a week. About 60% of those living in the most disadvantaged 20% of CDs had a weekly equivalised income less than \$400. About 15% of people in these areas had an income over \$600 a week and fewer than 8% had an income greater than \$800 a week.

Endnotes

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[Previous Page](#)

[Next Page](#)

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1370.0 - Measures of Australia's Progress, 2004

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Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: [Print Page](#) [Print All](#)

[About this Release](#)

[Contents](#)

[ABS releases Measures of Australia's Progress \(Media Release\)](#)

[Contents](#) >> [Progress indicators in other countries](#)

Introduction

Measures of Australia's Progress (MAP) reflects on issues of importance to Australia and Australians, and no systematic or comprehensive attempt has been made elsewhere in this publication to compare Australia's progress with that in other countries. But considering Australian progress side-by-side with progress in other countries can be informative: apparent progress in a dimension, say increases in life expectancy, might seem less (more) impressive if they are slower (quicker) than improvements in life expectancy overseas.

This article compares the level of Australia's progress with that of other countries in the Organisation for Economic Cooperation and Development (OECD). Information about a range of progress dimensions - **Health, Education and training; Work; The natural landscape; The human environment; International environmental concerns**; and **National income** - is presented. The article begins with some background information about population size and growth in different member states.

Most of the data used here comes from the OECD. Not all of MAP's headline dimensions of progress are discussed in this essay: few internationally comparable data are available for some areas. Moreover, for the dimensions that are discussed, we typically use indicators that are somewhat different from those used as headline indicators of Australian progress. To draw international comparisons we have had to use available data, and so have chosen the best approximation of the Australian progress indicators used elsewhere in this publication. Some of the difficulties inherent in drawing comparisons between countries are discussed in the box opposite.

In each area, Australia's progress is compared with a range of OECD countries. A core set of countries are included in each comparison - Canada, Italy, Japan, New Zealand, the UK and the USA - together with the highest and lowest performing OECD member states in each area.

Population

Australia covers 7.7 million square kilometres. Among the OECD member states, only Canada (10 million square kilometres) and the USA (9.4 million square kilometres) are larger. But Australia has fewer people than many OECD countries. In 2001, Australia's population was about 19 million. By comparison, about 286 million people lived in the USA, 127 million in Japan, 60 million in the UK, 57 million in Italy, 31 million in Canada, and four million in New Zealand.

Because of our relatively large land mass and small population, Australia's population density was, in 2001, among the lowest in the OECD: at about three people per square kilometre, we rank alongside Canada and Iceland as the least densely populated of OECD nations (although of course parts of Australia are more densely populated, as are parts of Canada and Iceland). In comparison, South Korea was the most densely populated country (476 people per square kilometre), while there were 244 people per square kilometre living in the UK, and 30 people for each square kilometre of the USA.

The difficulty in drawing international comparisons

When considering a nation's progress, or quality of life, it is often desirable to compare levels and rates of progress with those of other countries. But there are two main reasons why international comparisons are not possible for all the dimensions and indicators used in **Measures of Australia's Progress**.

- **Comparable Dimensions:** Some of MAP's dimensions cover aspects of progress that are (almost) uniquely Australian. For example salinity (a form of land degradation) is not a significant problem in many other countries. Restricting our measures of progress to cover only those areas of concern for which international data were available would have forced us to neglect areas of progress important to Australia.
- **Comparable indicators:** For most of MAP's dimensions, however, some international data are available. But it can be misleading to compare different data sets. For some indicators, say life expectancy at birth, where there is an agreed international definition, comparisons are valid. For other indicators, say crime rates, differences might be influenced by compiling practices. For other indicators, say the number of people with degrees, differences might be influenced by university curriculum standards. The quality of statistical data can also vary.

Progress outside the OECD

This essay focuses on Australia's progress compared to that of the 30 OECD member states: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States of America.

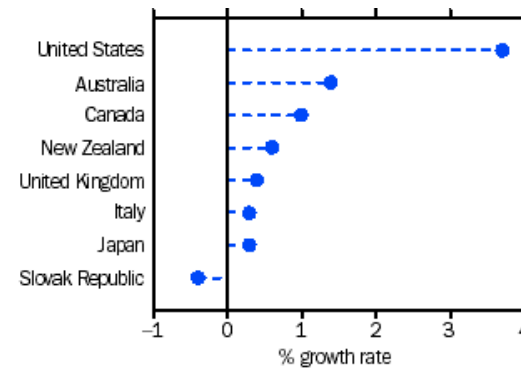
There are many other countries that readers might wish to compare Australia's progress with. We focus here on the OECD, primarily because there are a good deal of internationally comparable data to draw on (more so than for most other groups of countries).

Comparing OECD data with ABS figures

Most of the figures used in this article come from the OECD. In some cases they differ from data used elsewhere in this, or other, ABS publications. This is because, in order to draw international comparisons, the OECD sometimes use different classifications or data sources to those used by the ABS, or adjust ABS data.

Australia's population grew more quickly than many members of the OECD. Our rate of growth between 2000 and 2001 was 1.4%, alongside that of Iceland and Ireland, and behind only the USA (3.7%) and Turkey (1.7%). Fifteen OECD nations' grew by less than 0.5% between 2000 and 2001.

Population growth rates, 2000 to 2001



Source: OECD World in Figures, 2003.¹

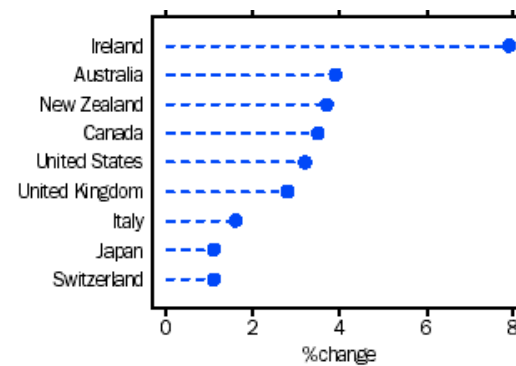
National income

Gross domestic product (GDP) per capita is a measure commonly used to compare countries' national incomes.

Between 1992 and 2002, only five OECD countries saw their total GDP grow more quickly than the Australian average rise of 3.9% a year. Growth was highest in Ireland, where GDP grew by an average of 7.9% annually. Growth across the whole of the OECD was more modest, averaging about 2.8% a year, and was weakest in Japan and Switzerland: GDP in both countries grew by an annual average of 1.1% over the ten-year period.

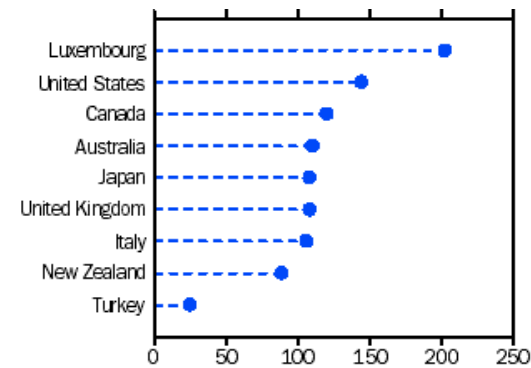
In 2002, Australia's per capita GDP, adjusted for purchasing power parity (i.e., adjusted to account for the different costs of living in different countries) was 10% above the OECD average. Luxembourg, whose per capita GDP was twice the OECD average, had the highest GDP per capita among the OECD members. Turkey's per capita GDP was the lowest in the OECD, at only a quarter of the OECD's average. In 1999 the OECD categorised Australia as falling into a group of 'high-middle income' countries. The group also included Italy, Canada, Japan and the United Kingdom.

Average annual GDP(a) growth, 1992 to 2002



(a) Average annual volume change.
Source: OECD World in Figures, 2003. ²

Gross domestic product per capita, 2002 (a)(b)



(a) Calculated using purchasing power parities. (b) OECD average = 100.

Health

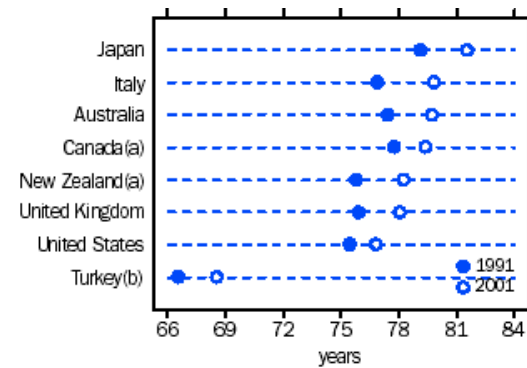
Life expectancy at birth is one of the most widely used indicators of population health. It focuses on length of life rather than its quality, but it usefully summarises the health of the population.

At the start of this millennium, Australia was among the most long-lived of OECD members. Australia was ranked sixth in the OECD for female life expectancy at birth (82 years), and fifth in the OECD for male life expectancy (77 years).

In 2001, Japanese people had the longest life expectancy: a girl born in Japan could expect to live to be 85 and a boy 78. By contrast, Turkey had the lowest life expectancy: Turkish men could expect to live to 66 and Turkish women to 71.

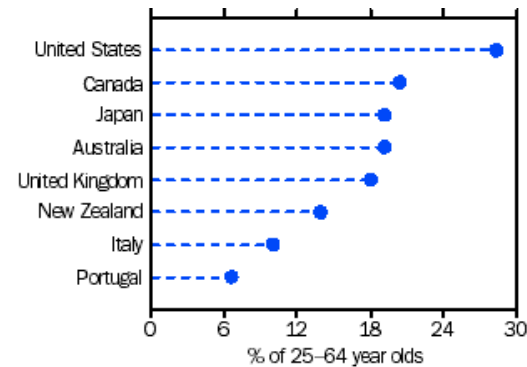
Australian infant mortality rates, however, did not rank as well against other OECD countries. About half the OECD members had lower rates of infant mortality than Australia. In 2001, a little over five Australian babies in every 1,000 died before their first birthday. This was below the figure in the USA (about 7 babies per 1,000) and well below the rates in Mexico (21 babies per 1,000) and Turkey (33 babies per 1,000). But it was higher than the rates in countries such as Italy and Japan (about four and three babies per 1,000, respectively).

Life expectancy at birth, 1991 and 2001



(a) Data are for 2000 not 2001. (b) Data are for 2002 not 2001.
Source: OECD World in Figures, 2003. ¹

Tertiary attainment(a), 2001



(a) Tertiary-type A attainment.
Source: OECD World in Figures, 2003. ¹

Education and training

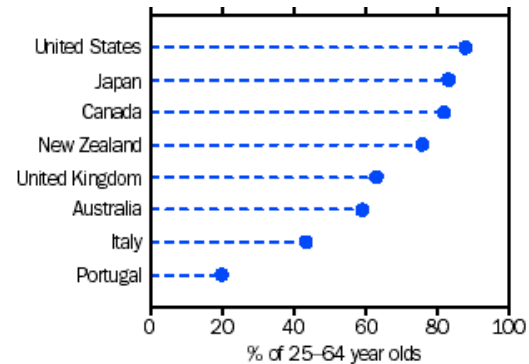
The OECD uses the **proportion of 25 to 64 year olds who attained an upper secondary or higher level qualification**, as a key indicator of a country's education.

In 2001, there was a wide variation in the proportion of 25-64 year olds with an upper secondary or higher qualification among OECD members, ranging from 88% in the USA to 20% in Portugal. The OECD reported that 59% of Australians in the 25-64 age range had an upper secondary or higher qualification. Eighteen OECD nations had a higher level of attainment, and across the OECD as a whole, some 64% of 25-64 year olds had an upper secondary or higher level qualification.

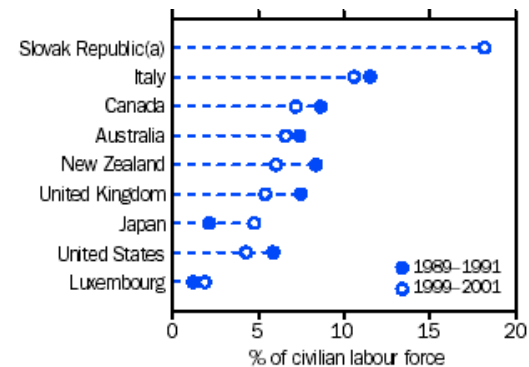
The OECD also discusses attainment of tertiary qualifications. The OECD reported that just over 19% of Australians in the 25-64 age group had a tertiary qualification in 2001, and that only four OECD members had a higher level of tertiary attainment. Once again there was a wide

variation, ranging from more than 28% of American 25-64 year olds with a tertiary qualification, to less than 7% in Portugal and Austria. Some 15% of 25-64 year olds across the OECD as a whole had a tertiary qualification.

Upper secondary or higher attainment, 2001



Average unemployment rates, 1991-01 and 1989-91



(a) Data not available from the Slovak Republic for 1989-1991.
Source: OECD *World in Figures*, 2003, 2002 and 2001.¹

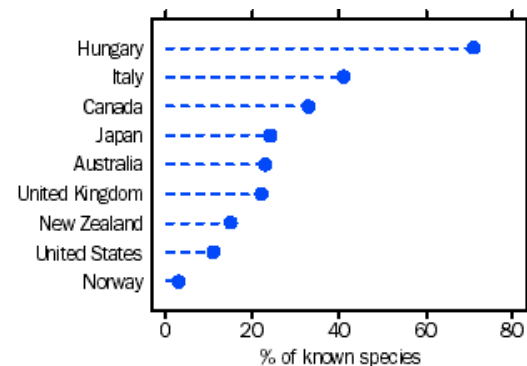
Work

Measures of Australia's Progress uses the unemployment rate as its headline indicator of progress in the **Work** dimension. The economic cycle is a major influence on the unemployment rate, and, in any one year, different countries can be at different stages of the economic cycle. In the graph above, the effect of the economic cycle has been removed, to some extent, by averaging data over three years. However, the economic cycle should still be taken into consideration when comparing unemployment rates between countries.

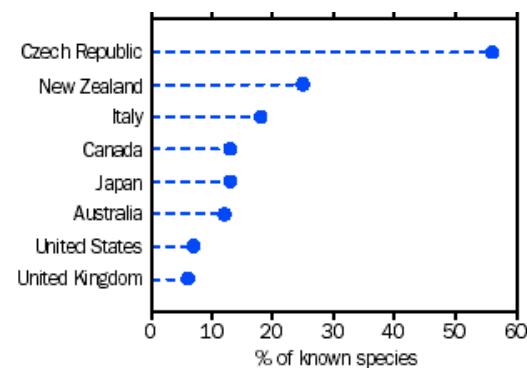
The OECD reported that average unemployment in Australia between 1999 and 2001 stood at 6.6% of the civilian labour force, down from 7.4% between 1989-91. Twelve OECD countries had higher average unemployment than Australia in 1999-01, with Australian rates lower than Canada (7.2%), Italy (10.6%) and the Slovak Republic (18.2%), the highest in the OECD. But our unemployment rate was higher than New Zealand (6%), Japan (4.8%) and the USA (4.3%). The OECD's lowest average unemployment rate during 1999-01 was in Luxembourg

(1.9%).

Threatened(a) mammals, 2003(b)



Threatened(a) birds, 2003(b)



(a) Species listed by the IUCN as vulnerable to, or endangered with, extinction. Excludes extinct species. (b) The information refers to the latest year for which data are available, which differs between countries.

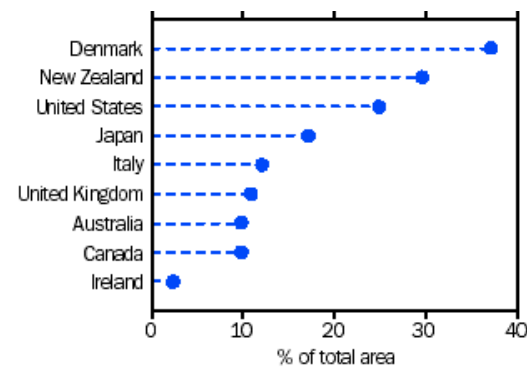
Source: OECD Selected Environmental Data, 2004.²

The natural landscape

The OECD report the percentage of known bird and mammal species in each country that are listed as threatened by the World Conservation Union (IUCN). The IUCN threatened species lists include animals assessed as vulnerable to, or endangered with, extinction. But they do not include species that are extinct, and so differ considerably from the figures used in MAP's headline indicator for biodiversity.

In 2002, the OECD report that 23% of Australia's mammal species and 12% of our bird species are designated as threatened.³ The proportion of species threatened varied: 71% of Hungary's mammals were threatened, compared to 3% in Norway; 50% of Luxembourg's birds were threatened, compared to 6% in the UK. Twelve of the OECD's thirty members had a greater proportion of mammals that were endangered or vulnerable than in Australia. Twenty five members had a greater proportion of bird species that were threatened.

Major protected areas(a), 2004 (b)



(a) IUCN categories I-VI. (b) The information refers to the latest year for which data are available, which differs between countries.
Source: OECD Selected Environmental Data, 2004.²

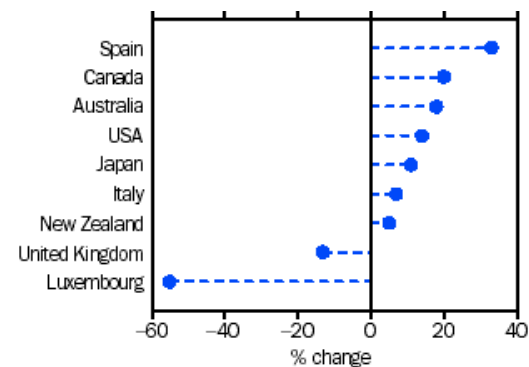
The area of protected land - land inside national parks and the like - is one measure of the protection afforded to a nation's natural landscape. The OECD report that the total land area of each OECD member that was protected ranged from 37% in Denmark to a little over 2% in Ireland. Australia, with 10% (77.4 million hectares) of land protected, was ranked in the middle of the OECD (fifteen of the thirty members had a greater proportion of their land protected than us): the OECD average was a little less than 15%

International environmental concerns

The change in a nation's emissions of greenhouse gases can be used to compare different countries' response to tackling global warming.

The OECD do not report total greenhouse gas emissions, and so data from the United Nations Greenhouse Gas Inventory database is presented here. These UN figures include emissions of the main greenhouse gases but do not include information about gases released by changes in land use or absorbed into new forest plantations (land use emissions and sinks are included in the Kyoto-based estimates discussed in the headline commentary **International environmental concerns**). The UN database does not include information for 2000 about three OECD members: Korea, Mexico and Turkey.

Change in greenhouse gas emissions, 1990 and 2000



Source: Data available on request, and compiled from the UNFCCC Greenhouse Gas Inventory database.⁴

Between 1990 and 2000, the UN data show that Australia's greenhouse gas emissions increased by almost 18%, with Australia already starting from a high base (our per capita emissions were the highest among reporting countries). Greenhouse emissions grew more quickly in five of the 27 reporting countries, and grew most quickly in Spain, rising by one-third over the period. Eleven countries reported a decline in emissions between 1990 and 2000, with the largest decline in Luxembourg where emissions more than halved.

Endnotes

1. Organisation for Economic Co-operation and Development (OECD) 2003, **OECD in Figures: Statistics on the member countries 2002 edition**, OECD, Paris.

2. Organisation for Economic Co-operation and Development (OECD) 2004, **Selected environmental data, 2004** www.oecd.org/dataoecd/11/15/24111692.PDF last viewed 8 February 2004.

3. Some threatened species occupy, and have always occupied, a restricted geographical range and, under many threatened lists, this restricted range is considered to be inherently threatening to the species. Because of this, at any point in time, these species would always be listed as threatened under some listings systems. It is also worth noting that the conservation status of most of Australia's 2 million or more species is not known, and this is particularly so for invertebrates. Difficulties with assessing progress by referring to changes in the numbers of threatened species are discussed in the 'Biodiversity' section of the **Natural landscape** commentary.

4. United Nations Framework Convention on Climate Change, **Greenhouse Gas Inventory**, <http://ghg.unfccc.int> last viewed 12 February 2004.

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1370.0 - Measures of Australia's Progress, 2004

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 21/04/2004

Summary

Downloads

Explanatory Notes

Related Information

Past Releases

Page tools: Print Page Print All

[About this Release](#)

[Contents](#)

[ABS releases Measures of Australia's Progress \(Media Release\)](#)

[Contents](#) >> Population, participation and productivity

Economic and Social influences on improvements in national income

Following the downturn of the late 1980s-early 1990s, Australia experienced more than a decade of sturdy economic growth. Between 1992-93 and 2002-03, the average rate of growth in real net national disposable income (RNNDI) was 4.0% per year.

Over the same period, Australia's population grew at an average rate of 1.2% per year, implying that per capita RNNDI (one measure of material living standards, and Measures of Australia's Progress's headline indicator for the income dimension of progress) grew by 2.8% a year.

Analysing changes in Australia's national income

There are many ways of analysing changes in Australia's national income. One illuminating perspective, used by the Treasury in their **Intergenerational Report**, considers changes in the number of people working, the hours they work and the value of the output they generate for each hour worked.¹ How many people work, in turn, depends on the age structure of the population, their participation in the labour force and the employment rate. This style of analysis begins from the following decomposition:

Real net national disposable income / Total Population

= Real net national disposable income / Real GDP

x Real GDP / Hours worked (commonly called 'labour productivity')

x Hours worked / Employed persons ('Average hours worked')

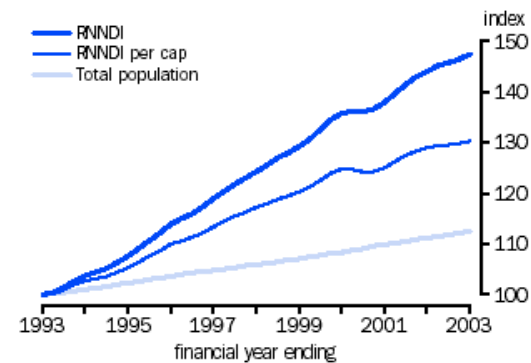
x Employed persons / Labour force

x Labour force/ Population aged 15 years and over ('participation rate')

x Population aged 15 years and over / Total population

More discussion of each of the components in the decomposition follows.

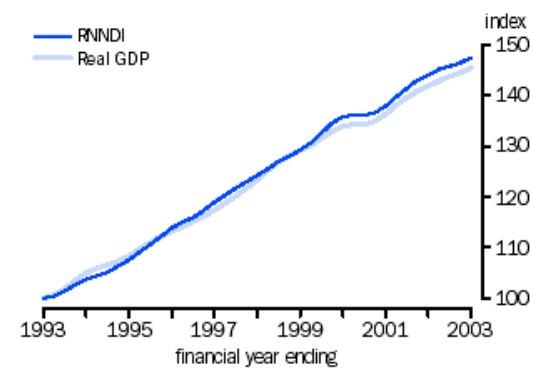
Real net national disposal income per capita and total population



Reference year 1992-93.

Source: Australian National Accounts: National Income, Expenditure and Product, cat. no. 5206.0.

Real net national disposal income and real GDP



Reference year 1992-93.

Source: Australian National Accounts: National Income, Expenditure and Product, cat. no. 5206.0.

Real net national disposable income and real GDP

Real net national disposable income differs from real GDP because it takes into account:

- Income flows between Australia and the rest of the world.
- Changes in the relative prices of Australia's exports and imports (the terms of trade).
- Consumption of fixed capital (the depreciation of machinery, buildings and other produced capital used in the production process).

Notwithstanding these differences, RNNDI and real GDP show similar trends: between 1992-93 and 2002-03, the average rate of growth in RNNDI was 4.0% per year, whereas growth in real GDP was a little weaker, at 3.8% per year. The major contributor to the difference was changes in the terms of trade.



The RNNDI to real GDP ratio increased 1.4% during the period 1992-93 to 2002-03 - an annual average growth of 0.1%. The commentary **National income** discusses GDP and RNNDI in more detail.

Labour productivity

During the past decade, the amount of GDP per hour worked rose by more than 20% - an annual average growth of 2.1%.

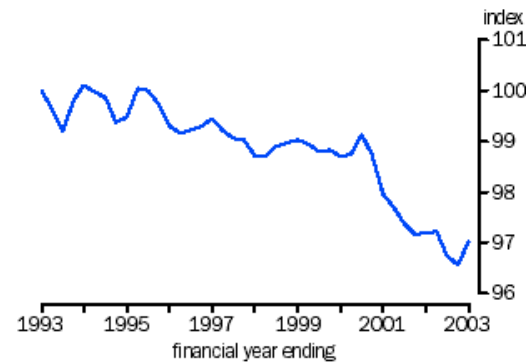
The improvement in labour productivity reflects two kinds of change - increases in the ratio of capital to labour ('capital deepening') and improvements in multifactor productivity (the amount of output per unit of labour and capital combined). It is possible to estimate the relative contributions of these two influences, but only for the market sector (measures of multifactor productivity are not available for the economy as a whole).

During the 1992-93 to 2002-03 decade, labour productivity in the market sector grew each year on average by 2.6%. Capital deepening grew at an average annual rate of 3% and the average annual growth rate for multifactor productivity was 1.3% during the same decade.

Underlying these changes were influences such as technological advances, improvements to the quality of labour or management practices,

organisational change, and shifts of labour, capital and other inputs toward firms or industries that are more productive. The commentary **Productivity** discusses multifactor and labour productivity in more detail.

Average hours worked by Australian employed population



Reference year 1992–1993.

Source: Australian National Accounts: National Income, Expenditure and Product, cat. no. 5206.0, Australian Labour Market Statistics, cat. no. 6105.0.

Average hours worked

During the past decade, the average hours worked by employed people fell by 3.0% - an annual average fall of 0.3%.

During this period, there was a strong rise in the number of part-time employees (up by 51%, whereas the number of full-time employees rose by 16%). There was a partly offsetting increase in the average working hours of full-time employees.

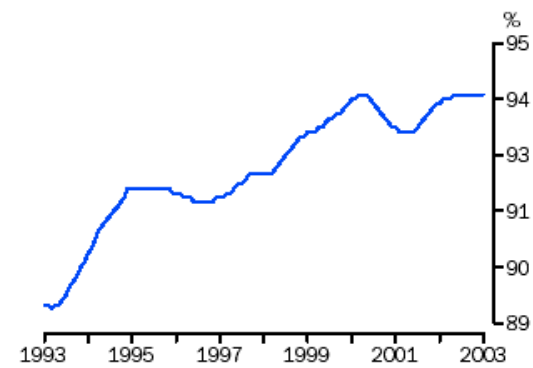
For more information on average hours worked, see the commentary **Work**.

Ratio of employed people to labour force

During the past decade, the proportion of the labour force that was employed rose from 89% to 94% - an annual average growth of 0.5%. This was mirrored by a fall in the unemployment rate, and reflected in part the generally buoyant state of the Australian economy through the past decade.

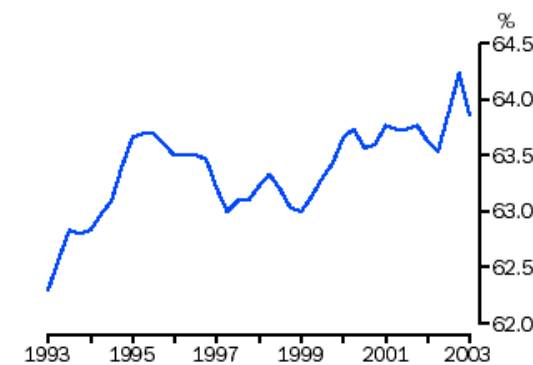
For more information on the ratio of employed people to labour force, see the commentary **Work**.

Ratio of employed people to labour force



Source: Australian Labour Market Statistics, cat. no. 6105.0.

Participation rate



Source: Australian Labour Market Statistics, cat. no. 6105.0.

Participation rate

Between 1993 and 2003, the labour force participation rate rose from 62% to 64% - an annual average rise of 0.2%.

Men and women showed opposite trends over the 10 years - the participation rate for men fell from 74% to 72%, whereas the rate for women rose from 52% to 56%.

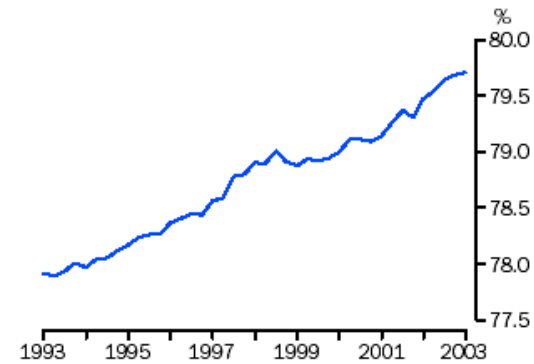
For more information on participation rate, see the commentary **Work**.

Ratio of population aged 15 years and over to total population

During the past decade, the proportion of the population that was 15 years of age or more rose from 78% to 80% - an annual average growth of 0.2%. This is consistent with the pattern of structural population ageing in Australia.

The commentary **Population** discusses ageing in more detail.

Ratio of population aged 15 years and over total population



Source: Australian Labour Market Statistics, cat. no. 6105.0 and Australian Demographic statistics, cat. no. 3201.0.

Influences on growth in Australia's real net national disposable income, 1992-93 to 2002--03

Component	Contribution (Average percentage points per annum)
Real net national disposable income / Real GDP	0.1
Real GDP / Hours worked (labour productivity)	2.1
Hours worked / Employed persons (average hours worked)	-0.3
Employed persons / Labour force	0.5
Labour force / Population aged 15 years and over (participation rate)	0.2
Population aged 15 years and over / Total population	0.2

Conclusion

A summary of the contribution to growth by the different components is provided above. Of the five components, the largest contributor to growth in real net national disposable income during the past decade has been the improvement in labour productivity.

Endnotes

1. Treasurer of the Commonwealth of Australia 2003, **Intergenerational Report: 2002-03** Budget Paper No. 5, May 2002, Treasury, Canberra.

[Previous Page](#)

[Next Page](#)

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